CANADIAN THESES ON MICROFICHE

I.S.B.N.

THESES CANADIENNES SUR MICROFICHE

National Library of Canada
Collections Development Branch

Canadian Theses on
Microfiche Service

Ottawa, Canada
K1A 0N4

Bibliothèque nationale du Canada
Direction du développement des collections

Service des thèses canadiennes
sur microfiche

NOTICE

The quality of this microfiche is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us a poor photocopy.

Previously copyrighted materials (journal articles, published tests, etc.) are not filmed.

Reproduction in full or in part of this film is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30. Please read the authorization forms which accompany this thesis.

THIS DISSERTATION
HAS BEEN MICROFILMED
EXACTLY AS RECEIVED

AVIS

La qualité de cette microfiche dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de mauvaise qualité.

Les documents qui font déjà l'objet d'un droit d'auteur (articles de revue, examens publiés, etc.) ne sont pas microfilmés.

La reproduction, même partielle, de ce microfilm est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30. Veuillez prendre connaissance des formules d'autorisation qui accompagnent cette thèse.

LA THÈSE A ÉTÉ
MICROFILMÉE TELLE QUE
NOUS L'AVONS REÇUE

NL-339 (r. 82/08)

Canada

0-315-08925-3

National Library
of Canada

Bibliothèque nationale
du Canada

36

Canadian Theses Division

Division des thèses canadiennes

Ottawa, Canada
K1A 0N4

56842

PERMISSION TO MICROFILM — AUTORISATION DE MICROFILMER

- Please print or type — Écrire en lettres moulées ou dactylographier

Full Name of Author — Nom complet de l'auteur

DOUGLAS EDWARD ANDERSON

Date of Birth — Date de naissance

December 16, 1950

Country of Birth — Lieu de naissance

CANADA

Permanent Address — Résidence fixe

13 MACDONALD DRIVE
GANDER, NEWFOUNDLAND

Title of Thesis — Titre de la thèse

DEAFNESS AND MOTHER CHILD INTERACTION

University — Université

UNIVERSITY OF ALBERTA

Degree for which thesis was presented — Grade pour lequel cette thèse fut présentée

Ph.D. EDUCATIONAL PSYCHOLOGY

Year this degree conferred — Année d'obtention de ce grade

SPRING 1982

Name of Supervisor — Nom du directeur de thèse

G. KYSELA

Permission is hereby granted to the NATIONAL LIBRARY OF CANADA to microfilm this thesis and to lend or sell copies of the film.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

L'autorisation est, par la présente, accordée à la BIBLIOTHÈQUE NATIONALE DU CANADA de microfilmer cette thèse et de prêter ou de vendre des exemplaires du film.

L'auteur se réserve les autres droits de publication; ni la thèse ni de longs extraits de celle-ci ne doivent être imprimés ou autrement reproduits sans l'autorisation écrite de l'auteur.

Date

Apr. 13 '82

Signature

Douglas E. Anderson

NL-91 (4/77)

THE UNIVERSITY OF ALBERTA

Deafness and Mother-Child Interaction

by

© Douglas E. Anderson

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF Doctor of Philosophy
IN

Educational Psychology

EDMONTON, ALBERTA
SPRING 1982

THE UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR Douglas E. Anderson

TITLE OF THESIS Deafness and Mother-Child Interaction

DEGREE FOR WHICH THESIS WAS PRESENTED Doctor of Philosophy

YEAR THIS DEGREE GRANTED Spring, 1982

Permission is hereby granted to THE UNIVERSITY OF ALBERTA LIBRARY to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly or scientific research purposes only.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

(SIGNED) Douglas E. Anderson

PERMANENT ADDRESS:

13 MacDonald Dr.
Gander, Newfoundland

DATED Oct. 30 1981

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled Deafness and Mother-Child Interaction submitted by Douglas E. Anderson in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Educational Psychology.

Supervisor

M. Rodda

Gary Holdgrafer

T. Maguire

External Examiner

Date.... October 30, 1981....

To My

Mother and Father

Acknowledgements

Thank you, the children and families involved in this study, for your participation, support and unlimited patience.

Thank you, Dr. Holdgrapher, Dr. Blakey and Dr. Rodda, members of my committee, for your helpful suggestions, comments and most of all your support.

Thank you, Dr. Tom Maguire, for your stimulating tutelage in reviewing my data and in presenting such extensive data in a meaningful way.

Thank you, Dr. Kysela, for your extensive help, patience, undying support and encouragement when things weren't all that I had envisioned. Thank you also for your friendship.

Thank you, Joanne, for your typing and editing but most of all for your support and undying friendship.

Thank you, Helen and Catherine, for your help, encouragement, support, and for your genuine friendship.

Most of all, thank you Jason for being there through the good and bad of it all, and for helping me keep my perspective on what life is all about.

Abstract

The purpose of this study was to explore the interaction process between mother and child dyads affected by deafness. Other variables, considered to be important to the interaction process, that were explored included, maternal attitudes about deafness, maternal acceptance of deafness and the amount of stimulation in the home. Maternal attitudes were measured using the Attitudes Toward Disabled Persons Scale (Yuker, Block and Younng, 1970) with supplementary information and "acceptance" scores being gathered from the Brown Parent Attitude Scale (Brown, 1969). The amount of daily stimulation to the child was measured using the Home Observation for Measurement of the Environment Scale (Caldwell and Bradley, 1979). Other major sources of data included medical, audiological and educational data collected via hospital and school records; standardized test of developmental level; and a comprehensive demographic questionnaire.

The major part of the study involved observation of mother-child dyads for one hour per week over a ten-week period using an observational system developed by the author from the earlier work of Clarke-Stewart (1973). Subjects included nine mother-child dyads constituting five groups including: (1) deaf mothers, deaf children using total communication; (2) hearing mothers, deaf children using total communication; (3) hearing mother, deaf child using oral communication; (4) deaf mothers, hearing children using total communication and (5) hearing mothers with hearing children.

Data analysis included descriptive data and statistics, correlational data and a lag sequential analysis of contingency between behaviors for each member of the dyads involved. Results indicate that deaf parents had the lowest scores on attitudes about deafness scales but the highest scores on acceptance of deafness scales. H.O.M.E. scores showed little differentiation between dyads. Interaction analysis indicated a variety of anomalous areas within and between dyads and these results were discussed in terms of parental acceptance of deafness, communicative ability of the dyad and the reciprocal interaction within the dyad.

Table of Contents

Chapter Page

I. Introduction and Statement of the Problem 1

A. Early Intervention with the Deaf 1

B. Statement of the Problem 2

II. Review of the Literature 5

A. Language Development 13

B. The Mother-Child Interaction Process 20

C. Research Method 29

D. Mother-Child Interaction Variables 32

E. Data Anyalsis 33

III. Methodology 37

A. Subjects 37

B. Observation Visits 39

C. Observer Training and Reliability 47

D. Parental Attitudes Questionnaire 49

E. Parental Expectation Questionnaire 51

F. Parental Demographic Questionnaire 52

G. Medical, Audiological and Educational Data 52

H. Leiter International Performance Scales 53

I. Home Observation for Measurement of the Environment 54

J. Maternal Responsiveness and Effectiveness 56

IV. Results and Discussion 61

A. The Sample 61

Group One (D-D) 62
Group Two (H-D) 63
Group Three (H-Do) 65
Group Four (D-H) 65
Group Five (H-H) 67
B. Patterns of Parental Attitudes, Expectations and Acceptance 68
C. Patterns of Home Stimulation 74
D. Patterns of Interaction 78
Interaction Time 78
Interaction Behaviors 79
Associated Behaviours 85
E. Patterns of Maternal Responsiveness and Effectiveness 96
V. Summary and Implications 104
Bibliography 110
Appendix A 127
Appendix B 138
Appendix C 151
Appendix D 158
Appendix E 161
Appendix F 164
Appendix G 257
Appendix H 296

List of Tables

Table Page

1. Observation and Testing Schedule.................... 38
2. Descriptive Data.................................... 40
3. Mode of Communication............................... 42
4. Mother Behaviors.................................... 44
5. Child Behaviors..................................... 45
6. Observer Reliabilities Expressed As Mean Percentages............................ 50
7. Maternal Responsiveness............................. 58
8. Maternal Effectiveness.............................. 59
9. Maternal Attitudes, Expectations and Acceptance Regarding the Deaf.............................. 168
10. Home Observation of the Environment (Birth to Three Years)........................... 177
11. Home Observation of the Environment (Three to Six Years)............................. 178
12. Interaction Time.................................... 180
13. Maternal Activities As Percentages of Communication Events Over Time.................. 186
14. Child Activities As Percentages of Communication Events Over Time.................. 187
15. Cross Correlations Within Dyads..................... 199
16. Intercorrelations Within Dyads (Mother)............. 200
17. Intercorrelations Within Dyads (Child).............. 201
18. Maternal Behaviors Followed By Child Behaviors At Lag One Event Level (%)............. 214
19. Child Behaviors Followed By Maternal Behaviors At Lag One Event Level (%)............. 215

20. Maternal Responsiveness (%)........................ 243

21. Maternal Effectiveness (%)......................... 244

22. Changes in Maternal Behaviors Over Time............ 253

23. Changes in Child Behaviors Over Time............... 254

24. to 62. Individual Family Correlation Tables........ 257 to 295

63. to 80. Individual Family Lag Analysis Data......... 297 to 332

List of Figures

Figure Page

1. Attitudes Towards Deaf Persons Scale................ 169

2. Brown Parent Attitude Scale......................... 173

3. Acceptance of Deafness in Families With Deaf Children.............................. 174

4. Intra-Dyad Interaction.............................. 182

5. Mother's Informing and Questioning.................. 189

6. Mother's Demonstration and Expansion................ 191

7. Mother's Directing, Negatives and Positives......... 192

8. Children's Informing and Questioning................ 196

9. Children's Responding, Negatives and Positives...... 197

10. Behaviors Responded to by Mothers At Lag One Event Level.......................... 216

11. Mother's Response Rates At Lag One Event Level.......................... 217

12. Behaviors Responded to by Children At Lag One Event Level.......................... 218

13. Children's Response Rates At Lag One Event Level.......................... 219

14. Maternal Responsiveness and Effectiveness.......... 249

15. Emitted Behaviors Over Time........................ 250

I. Introduction and Statement of the Problem

A. Early Intervention with the Deaf

The past decade has seen an increasing trend toward the development of intervention programs for infant and preschool age deaf children (Northcott, 1973; Connor, 1976). The major methodological thrust of this early intervention has again, as with school age deaf children, divided itself into the 'oral' and 'total communication' streams (Rodda, Godsave and Stevens, 1974). In terms of effectiveness, both sides provide empirical arguments for their cause. However, in considering all hearing impaired children, one single approach may never suffice, due to the affecting variables such as etiology, degree of hearing loss and home environment (Myklebust, 1964). The body of research evaluating effectiveness of these approaches has been focused upon the school age child with a few exceptions which will be reviewed. The main thrust of the research proposed here is not to engage in the 'oral/total communication' debate but rather to attempt to evaluate the amount and effectiveness of interaction processes between preschool deaf children and their mothers. Since this research is primarily concerned with preschool deaf children and their developing interaction skills, the writer has chosen to follow deaf children being taught by the 'total communication' approach, as well as those involved with an 'oral' approach, and to include children who are hearing but affected by the deafness of their parents; children who are not affected by any hearing impairment in their homes will also be involved. Such a cross section should help to alleviate the dearth of literature on the effects of deafness on mother-child interactions.

B. Statement of the Problem

This research maintains that deaf preschoolers and their mothers can benefit from specific intervention strategies implemented from the point of detection of the hearing loss. However, for reasons outlined later in this review, such strategies cannot be determined until further information is available on the mother-deaf child interaction process and the subsequent intervening variables. At present, very little is available in terms of parent-centred, goal directed programs for deaf children between birth and four years of age. Even less information is available in terms of evaluating the present strategies used with these children. The information that is available is varied and employs different assessment instruments, different curriculum objectives and different data recording procedures. Such inconsistencies make direct comparison of child behaviour change among differing programs difficult, if not impossible.

The Association for the Hearing Handicapped in Edmonton currently offers one of two infant intervention programs for hearing impaired children in the city. The second program is offered by the Glenrose Hospital and operates on a completely 'oral' approach as compared to the 'total communication' approach offered by the Association. The sample for this study includes children from both programs as well as children who are not involved in any preschool intervention.

As an integral part of the infant intervention and preschool program, the Association offers a parent-centred support service which includes a teacher who visits the homes on a regular basis to provide moral, as well as professional, support in terms of communication techniques, hearing aid usage, etc. The Glenrose Hospital, offering the other alternative to preschool intervention for the hearing impaired, provides quite a different service for these children. There is no home based program available; instead the children go to the hospital once a week for speech therapy, and communication is totally via an oral approach. This research will not directly compare children taught by either method but rather will look at some of the variables which may be affecting the communicative development of these children across programs.

The purpose of this research is to study the mother-child interaction process for a cross section of children and parents affected by deafness as well as children and parents not affected by deafness.

It is hoped that with such a group of dyads, interaction factors common to all can be identified and perhaps more importantly, anomalous interaction patterns common to certain dyads may be identified.

Considering the high cost of preschool intervention as well as the difficulty in evaluating its effectiveness the need to identify targets for intervention, such as the mother-child interaction process, becomes increasingly obvious. It is hoped that this research will shed some light on the deaf child-mother interaction process as it affects sequential communication patterns, and aid in generating hypotheses as to the relationships existing between interaction patterns and communicative modes.

II. Review of the Literature

The major impetus for the present research lies in the belief that there are a great number of important and complex issues in the education of preschool deaf children which should be investigated. While a great number of questions regarding methodology, placement, program orientation, structure and emphasis still need to be addressed, it is hoped that this research can make a significant contribution in the area of mother-child interaction with deaf children. It is subsequently hoped that this research can impel other researchers to address themselves to these and other issues of practical importance in the education of young deaf children. To date, extremely little research is available addressing the mother-child interaction process as it applies to the deaf child.

The apparent lack of comprehensive data may be traced to two primary sources. First, the numerous problems in evaluating the mother-infant interaction process are compounded by the added dimension of deafness. The difficulty in assembling a sufficiently large sample, the overriding factor of effectively communicating with the young deaf child, and the lack of evaluation with instruments appropriate for use with a population of preschool deaf children, are some of the difficulties encountered in the collection of empirical data.

Vane (1976), in discussing problems in evaluating preschool programs, suggests that the two main factors interfering with the proper evaluation are the measuring instruments used and the type of design selected. Considering the extremely small population of deaf preschool children available and the extremely limited number of evaluation materials appropriate for such a population, the problems become even more acute.

Another and perhaps even more inhibiting factor is the highly emotional nature of the question of educational methodology with young deaf children. In a report to the American Secretary of Health, Education and Welfare (Babbige, 1965), it was noted that for more than one hundred years, emotion has served as a substitute for research in the education of the deaf. Some prominent educators in the field firmly believe that the use of any kind of manual communication will prevent the development of speech and language and result in a mute subculture, while others believe just as firmly that depriving a deaf child of manual communication will cause irreparable linguisitc, educational and emotional damage. Given such a climate, most researchers prefer to investigate other questions in the area of deafness.

While these concerns have some validity, they cannot be allowed to impede the objective analysis of the evaluation of young deaf children. Educational decisions must be made daily, and if little information exists, these decisions will continue to be made on the basis of emotion and other similarly reliable factors. As Lasso (1978) points out, teachers of the deaf frequently use intuition when selecting material for teaching these children, raising numerous questions regarding their appropriateness. Northcott (1973), in randomly sampling preschool teachers of the deaf, found that only five out of one hundred-nineteen sampled had received any early childhood concentration at university. The necessity for sound, empirically based information to assist in the educational decision-making process becomes even more urgent in light of the recent proliferation of preschool programs for the hearing impaired.

According to information presented in the Annual Directory of Programs and Services of the American Annals of the Deaf, the number of deaf children served by preschool programs has increased tremendously in the past fifteen years (Doctor, 1962; Craig, 1970) to the extent that the majority of deaf children in urban areas are likely to have been identified and to have received some treatment before entering school. However, while it appears from these documents that we have ensured quantity, in terms of preschool offerings for our deaf population, a more critical question of quality still remains largely unanswered.

Existing studies tangential to the focus of the current research have dealt with various aspects of educating the deaf, including the academic achievement of such students, effectiveness of preschool programs, methodological comparisons and studies of deaf children of deaf parents. A review of the academic achievement of deaf students leads to discouraging conclusions. Most research supports the assertion that the majority of graduates of educational systems for the deaf are under-educated. Deaf adolescents and adults of average intelligence in North America and Europe are reportedly unable to read at the fifth grade level (Furth, 1966; Norden, 1970), lack basic linguistic skills in the language of the hearing community (Moores, 1970; Rodda et al, 1974), and are incapable of receiving and expressing oral communication on anything but an elementary level (Montgomery, 1966; Rodda, Godsave and Stevens, 1974). While deaf educators will argue incessantly over methodologies, etc., none will disagree that in the final analysis, the results, for the deaf adult, have been very discouraging in terms of linguistic and academic abilities. Amazingly, little research has addressed what intervention strategies and techniques are viable with the deaf child, even in light of the historically poor performance of deaf education generally.

Studies focusing on evaluation of preschool programs have reported similar results, suggesting few or no differences between deaf children with preschool training and those who have not been involved in preschool programs. Craig (1964) found no differences in speech-reading skills between children with preschool experience and those with no such experience.

In comparisons between children who received preschool training and those who did not, Phillips (1963) found that by age nine, no differences existed between preschool and non-preschool groups in the areas of language arts, arithmetic, and socialization. As part of a follow-up study of graduates of the Tracy Clinic, Vernon and Koh (1970) matched graduates with non-preschool deaf controls in age, IQ and sex. There was no difference between subjects trained at the Tracy Clinic and those with no preschool experience in speech, speech-reading, academic achievement or reading. Rodda, Godsave and Stevens (1974) confirmed these results in a study of hearing impaired children who had received 'oral' preschool training compared to children who had received no preschool intervention. They concluded that:

> ...academic achievement and speech and language of whatever form is not significantly improved by attendance at a preschool program by these children. (pp. 734-735).

The above cited studies conducted by non-affiliated investigators compare children trained in 'oral-only' preschools with those who received no preschool training. These inquiries consistently point out the absence of any linguistic or academic benefit between 'oral' preschoolers and the non-preschool group.

Relatively few studies directly comparing the efficacy of methdologies at the preschool level have been undertaken. One such study was conducted by Quigley (1969), who reported that preschool children taught by the Rochester Method (the simultaneous use of speech and fingerspelling) were superior to children taught by the oral-only approach in measures of speech-reading, reading and written language. Additionally, in a clinical study of deaf preschoolers and their mothers, Greenberg (1980) found that dyads using total communciation had interactions that were longer, more complex, and contained more co-operation and positive affect than those of oral dyads.

Combined with these findings, recent research on the relative superiority of deaf children of deaf parents has had a strong and growing impact on the field. These findings suggest that deaf children of deaf parents tend to be better adjusted, to achieve academically at a higher level, to have better language abilities and to have equivalent speech development, as compared to deaf children of hearing parents (Best, 1972; Meadow, 1967; Quigley and Frisina, 1961; Stuckless and Birch, 1966; Vernon and Koh, 1970). Of great importance is the evidence that deaf children of deaf parents increase their relative advantage with age, so that by late adolescence, their superiority is much more pronounced.

In view of these findings in favour of deaf children of deaf parents, which may have been the result of an exposure to signs from birth, and because 'oral-only' programs have shown no difference or have illustrated only temporary effects, it has been argued that many preschool programs have failed because they have been restricted to 'oral-only' methods (Vernon and Koh, 1971; Rodda, Godsave and Stevens, 1974; Moores et al, 1978). Thus, it has been hypothesized that perhaps the addition of manual communication would improve results. Such reasoning has led to the development of many recent preschool programs utilizing a system of total communication which involves the use of sign, fingerspelling and oral/aural communication.

Moores, Weiss, and Goodwin (1978) applied themselves to evaluating, through a six-year longitudinal study, the effectiveness of various early intervention strategies being emphasized in the education of the hearing impaired. They concluded that the lack of early cognitive academic training (as opposed to incidental teaching) puts the young deaf child at a disadvantage which may not be overcome, and which increases in the early elementary school years. In terms of methodology, they found that it is harmful to delay the use of manual communication, since children who do not receive such training during the early stages of development do not catch up by age eight. The least beneficial approach for the children studied included an aural-only methodology within a traditional, socially-oriented nursery school framework. However, Corson (1973) argued that the key factor to the success of deaf children using a total communication approach is not only the mode of communication but more importantly, the acceptance of the handicap by the parents. He felt the question of 'how' communication takes place is secondary to the issues of parental acceptance of deafness and that only after this problem is overcome can meaningful education of the deaf child take place.

Another methodological variable receiving a great deal of attention during the past five years is the question of 'who' implements the intervention strategies being used. Bronfenbrenner (1974, 1976), in reviewing the long term effects of a variety of early intervention programs, found that "structured cognitive programs produced greater initial gains than play-oriented nursery programs" (Bronfenbrenner, 1976, p. 247).

However, for children enrolled in group settings, early gains on norm-referenced measures were largely washed out over the course of time except where some follow-through program was implemented. Similar results were reported from home-based tutoring programs. One exception to this trend was reported by Bronfenbrenner and included families who had received intervention that was parent (usually mother) and child directed. These children's gains continued after a child enrolled in group programs or regular school settings. While the Moores et al (1978) longitudinal study did not focus on any home-centred programs, they did confirm Bronfenbrenner's contentions that academic-cognitive orientations were more productive than the traditional preschool socialization approach.

A. Language Development

Psycholinguists, from the behavioral models of Skinner (1957) and Osgood (1953) to the transformational grammar of Chomsky (1965), have attempted to deal in their own ways with the linguistic abilities of non-verbal children. Soviet psychologists, as well, have been interested in the functions of "external" and "internal" speech, seeing these as radically different functions of language. Luria, as an exponent of Vygotsky's (1962) view, further developed the idea that speech was part of man's phylogenetic development and in fact served mainly as a signal function to express internal states of emotional or organic need. As Piaget states, "...language simply reflects the attainments of sensorimotor development..." (Bower, 1979, p. 142). This is not to deny that, for hearing children, speech structures, once internalized and mastered, become the basic structures of their thinking process; rather it is to point out that verbalization is one, not 'the' means of mastering and internalizing a symbol system that can be used for higher order processing and cognitive functions.

Language treatment and research activity over the past twenty years have largely been based on the behavioral constructs of Skinner (1957), or the transformational grammar of Chomsky (1957, 1965). These dominant theoretical bases of the past have avoided any considerations of cognitive function per se, and have focused on the more observable systems such as structural grammar rules or antecedant and consequential stimuli. Considering this in the light of intervention strategies, if one's theoretical view of language focuses around Chomsky's (1957) transformational grammar, then intervention would be directed toward base grammatical structures and their transformations. On the other hand, if one's theoretical base focuses around Skinner's (1957) model, intervention targets would be directed to "manding" responses from the child or providing appropriate "tacts" of antecendent stimulus objects.

Regardless of which theoretical base one operates from, the resultant intervention practices superimpose a limited adult perspective on the understanding and function of children's utterances (McLean and Snyder-McLean, 1978). To this point, both theories have largely avoided the child's perception, both in terms of the structure of an utterance and/or the function of an utterance. As McLean and Snyder-McLean state:

> The importance of reflecting child perspectives more completely in language intervention programs is extremely far-reaching in its specific implications. One should see that such perspectives would have impact on all aspects of intervention from the targets of intervention to the nature of the teaching variables used and the patterns of manipulation applied to such variables. (p. 15).

This point becomes increasingly more obvious when one considers the sensory restrictions of the deaf child and the resultant perceptual deficits in terms of auditory stimulation. Considering language acquisition with the deaf child from the perspective of either of the two previous models would leave tremendous gaps from a cognitive as well as from social and linguistic perspectives.

Recent research with young children (Bloom, 1970) discovered that grammars written independently of their semantic intent often missed the grammatical relationships which were present in utterances (McLean and Snyder-McLean, 1978). Further research (Bowerman, 1973; Schlesinger, 1974; Greenfield and Smith, 1976) supported Bloom's contentions away from the popular model of transformational grammar as posited by Chomsky, toward a model of language which views structure as inexplicitly related to the meaning of an utterance intended by the speaker. In essence then, the semantic relationships reflect the child's perception and understanding between and among entities and actions. The early language of a child is merely an expression of his perception of these relationships. This development of early language in the child is felt to be isomorphic with the cognitive development of the child and in fact is a direct manifestation of cognitive development (McLean and Snyder-McLean, 1978). It is interesting to note here that past research on the cognitive development of deaf children (Furth, 1966; Myklebust, 1964; Mindel and Vernon, 1971; Best and Roberts, 1976) indicated normal development through the sensorimotor stage in all areas except vocal imitation.

Hence, the deaf, at least in terms of cognitive prerequisites, should be in a position to develop language from birth much the same as a hearing child. However, in light of recent research, and the resultant transactional model as proposed by McLean and Snyder-McLean (1978), the major thrust of the cognitive bases of language depends entirely upon the establishment of a reciprocal communication relationship between caretaker and child which stimulates the processing of sensory and social information. Carew's (1980) recent research with young children, at home and in an infant daycare setting, supports the need for intellectual experiences focusing on mastery of language skills. Carew found that the strongest predictor of IQ and receptive language scores were language mastery experiences in which the caregiver played a critical role in creating the experience for the child. While these prerequisites may occur more naturally for the hearing child and parents, the discovery of deafness in a child quite often leads to periods of shock, anger, guilt, denial and fear on the part of hearing parents of a deaf child. The hearing mother, caregiver to a deaf child, will experience frustration and helplessness in attempting to communicate with her child (Mindel and Vernon, 1971). The result is often a home environment unable to provide the necessary environment for language development. In a study of mother-child interactions and parental attitudes, Connor (1976) concluded that the previously stressed objective of developing language skills with deaf children must be preceded by reducing and removing the tension, anger and emotional barriers that separate the mother (family) from the deaf child. However, Best and Roberts (1976) in studying the environmental stimulation in homes of deaf children, found that the mothers of deaf children were providing higher levels of stimulation than a normative group, and postulated that the results were a function of parental involvement in preschool programming. Hence, the variable of parental involvement may provide the impetus for improved attitudes which, in turn, will manifest themselves in a reciprocal involvement with the child and therefore enhance the language development process.

One further overriding factor consistent throughout recent literature is the notion of "appropriate input" for the child (McLean and Snyder-McLean, 1978). The purpose of this research is not to engage in the 'oral' vs. 'total communication' controversy, since the literature speaks for itself. However, whichever side one supports, the basic premise and goal must be the provision of "appropriate input" for the deaf child at the earliest possible age, so as to enhance language development to some degree of 'normality'.

The oral/aural method advocates the development of speech through the use of amplification and speech-reading only, while the total communication approach advocates the use of manual signs, fingerspelling, speech-reading and amplification. Viewed from a sensory-modal processing standpoint, the child in a total communication program is offered two alternative means, both through his strongest receptive mode, of receiving information via this approach than he is through an 'oral' approach. It would seem that the 'total approach' provides language alternatives for deaf children at any point on a verbal/non-verbal continuum while the 'oral' approach offers only one alternative; if children fail at this then they will, in most cases, be beyond the optimal period for adequate intervention. Rodda, Godsave and Stevens (1974) quote a figure of 11.6 per cent of the deaf population as having good speech-reading skills and clear, intelligible speech. This failure of oral communication among deaf adults highlights the need for careful consideration of the "appropiate input" variable when outlining intervention strategies with the young deaf child. In a study of infant development, Clarke-Stewart (1973) found that the combination of verbal and visual stimulation, when frequently given, appears to accelerate development and to benefit adjustment generally. Considering the sensory deficit of the deaf, the need for stimulation through all modes is even more important. Clarke-Stewart (1973) also concluded that the amount of verbal stimulation directed toward the child was significantly related to the hearing child's intellectual development, particularly the ability to comprehend and express language. Stuckless (1978) posits that equivalent stimulation with the deaf, emphasizing their strongest receptive mode, should have similar effects.

In summary, we have collected a large amount of data over the past fifteen years as to the poor academic and linguistic abilities of deaf school children and adults (Furth, 1966; Vernon and Koh, 1970; Rodda et al, 1974). We also have significant data indicating that deaf children of deaf parents are better adjusted socially, and have better communication abilities and equivalent speech development compared to deaf children of hearing parents (Best, 1972; Meadow, 1967; Quigley and Frisina, 1961; Stuckless and Birch, 1966; Vernon and Koh, 1970).

Recent research in the area of language development (McLean and Snyder-McLean, 1978; Carew, 1980) indicates a need for "reciprocal interaction" and "appropriate input" between mother and child to ensure the development of linguistic abilities with all children. Considering the inability of deaf educators to define "appropriate input" for deaf children, it would seem evident that the type of input will vary greatly across families of deaf children, positing numerous questions in terms of the "appropriate input" dimension.

The traumatic effects of having a deaf child in the home, when considered in light of the need for large amounts of "reciprocal interaction", will posit questions as to the amount and types of effect that acceptance of the child's handicap will have on these interactions.

Schlesinger and Meadow (1972) observed mother-child interaction and found that hearing mothers of deaf children were rated as less permissive and flexible, and more didactic and intrusive than mothers of hearing children. Similarily, Goss (1970) and Collins (1969) reported that mothers of deaf children gave more directive and controlling communication than did hearing controls. Additionally, numerous extra-familial studies indicate that compared to hearing children, deaf children, especially those of hearing parents, have a higher incidence of behavior problems (Meadow, 1975), as well as unfavorable personality traits such as egocentricity and impulsivity (Levine, 1960).

It has been suggested that these unfavorable findings result from deprivation of rich communication during early childhood (Mindel and Vernon, 1971; Moores, 1978), and further, to be directly related to the caregiver's acceptance of the handicap (Corson, 1973). Considering that approximately 92% of all deaf children have hearing parents (Schein and Delk, 1974), the issue of parental acceptance and its resultant effects on the dyad's interaction process becomes increasingly important. The following section attempts to review our knowledge of interaction patterns of normal and handicapped children with their mothers and the resultant implications for this research.

B. The Mother-Child Interaction Process

Researchers have long been interested in the mother-child interaction process and its effects on child development. Early institutional studies (Bakwin, 1942;

Brodbeck and Irwin, 1946; Goldfarb, 1945; Spitz, 1946; Spitz and Wolf, 1946) asserted that children deprived of a mother's care suffered developmental retardation. More recent research (Ainsworth, 1963; Ainsworth and Bell, 1969; Rheingold, 1960; Schaffer and Emerson, 1964) has tried to define specific variables responsible for this "developmental retardation" within the parameters of the mother-child interaction process. This trend of identifying specific interacting variables has produced a great deal of research over the past two decades, with encouraging results. Researchers have found that maternal attitudes which are positive, accepting, and which express eagerness for close interaction with the child, show positive relationships to child development (Lakin, 1957; Moss and Robson, 1968; Stern et al, 1969; Caldwell, 1967; Yarrow, 1963; Clarke-Stewart, 1973). Physical handling that is gentle, firm, close and relatively frequent seems to have a beneficial effect on the child's early cognitive and motor development and on his attachment and responsiveness to his mother (Ainsworth et al, 1971; Casler, 1965; Lewis and Goldberg, 1969; Clarke-Stewart, 1973). Further research (Goldberg and Lewis, 1969; Schaefer et al, 1968; Clarke-Stewart, 1973; Friedlander, Jacobs, Davis and Wetstone, 1972; Elardo, Bradley and Caldwell, 1977; Carew, 1980) found that distinctive and frequent verbal stimulation from the mother, by reading or talking to the child, has also been related to children's cognitive development, expressed by more frequent vocalization and greater language ability. The combination of verbal and visual stimulation, when frequently given, appears to accelerate development and to benefit adjustment generally (Moss, Robson and Pederson, 1969; Saltz, 1971; Clarke-Stewart, 1973; Carew, 1980).

The mother, however, is not only a direct source of stimulation, but is also a mediator of stimulation from the environment. Children of mothers who provide a greater number and variety of play materials and activities tend to be cognitively advanced (Yarrow et al, 1971; Elardo, Bradley and Caldwell, 1975). Moreover, the mediation of materials by the mother is more closely related to the child's skill with objects than is mere exposure to a stimulating physical environment (Clarke-Stewart, 1973; Carew, 1980).

A further "twist" to this already complex interaction process is the effect of the child on the mother's (caregiver's) behaviour. The reciprocal effects of child-mother interaction have been clearly demonstrated by many researchers (Bell, 1971; Harper, 1971; Moss and Robson, 1968; Clarke-Stewart, 1973; Osofsky and Danzger, 1974; Gerwitz and Boyd, 1976). Studies of children's responsiveness to stimuli provided by the mother (Escalona, 1963; Brazelton et al, 1971) indicate that a non-responding child may affect the mother's feeling of attachment and competency, and also affect her attempts to elicit responding behaviour. The direct relationships of sensory deprivation to these studies will be reviewed later in this chapter.

Another major variable affecting the mother-child interaction process is the mother's early attitude toward her child (Bibring, 1961; Haka-Inse, 1975; Kempe, 1976). Maternal insensitivity, or a mother who cannot, or will not, respond to her child's cues, can severely impede the relationship with her child (Korner, 1974). These studies are especially important in light of the deaf child, since the effects of sensory deprivation and family rejection of handicap will combine during critical periods of the mother-child interaction process.

Earlier research (Bing, 1963; Jones, 1972) found that low-verbal children received less maternal attention than normal control groups, especially in the area of stimulating verbal exchange. More recent investigations (Wulbert, Inglis, Kriegsmann and Mills, 1975; Hubbell, 1977) found that mothers of language-delayed children tended to talk about their children in critical tones and seldom praised or caressed. They were much quicker to shout at their children and while they met their children's needs adequately, interaction was minimal. Wulbert et al (1975) concluded that language-delayed children were a source of great frustration to their mothers and that mutual interaction did not seem pleasurable for either child or mother.

Twenty years ago, researchers (Myklebust, 1960; Suchman, 1959) found that sensory deprivation in a child did in fact inhibit parent-child communication, thus affecting his learning ability and socio-emotional sensitivity. More recently, other writers (Myklebust, 1964; Schlesinger and Meadow, 1972; Connor, 1976; Meadow and Trybus, 1979; Wedell-Monnig and Westerman 1977) confirm these reports and further elaborate that the previously stressed objective of developing language skills with deaf children must be preceded by reduction and removal of the tension, anger and emotional barriers that separate the mother (family) from the deaf child. These writers agree that the great majority of hearing parents of deaf children experience frustration and helplessness in their attempts to communicate with their child; this often results in a home environment unable to provide the necessary environment for the child's cognitive/social and linguistic development (Mindel and Vernon, 1971).

Reflecting on the frustrations of parents of deaf children (Allen and Allen, 1979; Robinson, 1979) and supported by the work of prominent researchers of the deaf (Furth, 1966; Schlesinger and Meadow, 1973), there appears to be considerable evidence that the trauma of having a deaf child, especially to a hearing family, often creates an atmosphere of pain, rejection, denial and guilt, even withstanding the difficulties of communication which may be forthcoming. The negative effects of parental withdrawal cannot be over-emphasized, in light of the cumulative research (McLean and Snyder-McLean, 1978; Bower, 1979) addressing the child's need for a primary caregiver with whom to establish communication and from whom to effect responses, for frequency of opportunity to communicate, for responsive adults, for multiple experiences and for appropriate input and reciprocal interaction. As Whitehurst, Novak and Zorn (1972) point out, environmental deprivation can be a very subtle variable and yet have quite profound effects.

However, considering the amount of literature accumulated over the past two decades arguing persuasively for the role of a positive reciprocal mother-child interaction process to enhance early cognitive, social and language development, extremely little has been forthcoming from researchers of the deaf. Focusing on the sensory deprivation and its potential effects on the mother-child bond in combination with the general communication difficulty, the study of mother-child interaction within the deaf population appears a necessity, in order to fully understand many of the complex variables affecting the lives of mothers and children struggling through the early years within the confines of this handicap. Wedell-Monnig and Westerman (1977) point out that:

> When mother's expectations of a conversational interaction beyond a gestural level are not met she feels frustrated and may be able to deal with these frustrations only by limiting furthur interaction with her child. To avoid such problems we suggest that the hearing mother-deaf infant interaction be evaluated as one index of the child's progress in receptive and expressive language. (p.17).

Researchers (Adler, 1973; Broen, 1972; Wyatt, 1969; Bower, 1979; McLean and Snyder-McLean, 1978; Carew, 1980) agree that what is essential, at least in terms of appropriate "language" development, is dynamic interchange, where the mother gives positive responses to the child's attempts to communicate and also modifies her own communicative behavior to meet the child's ability to respond. This section has briefly reviewed some of the inherent problems of the deaf child and his family in developing such a positive, reciprocal interaction process, yet little data-based research is available to support or refute these contentions. One is overwhelmed by the literature on hearing children which supports the need for positive reciprocal mother-child interaction and again is deluged with the literature on the social, emotional and communicative aspects of deafness which would affect such interactions. We have supporting literature with other language-delayed children and deaf children observed in clinics (Collins, 1969), but observations of the deaf child-mother interaction in the natural home environment are simply not available.

As Whitehurst et al (1972) point out, questions regarding such interactions can only be answered by studying the development of language in situations where parents and children can interact in a normal manner and where variables are defined from the situation rather than imposed upon it. Examples of prominent studies using the natural home environment include the work of Bloom (1970); Wachs, Uzgiris and Hunt (1971); Elardo, Bradley and Caldwell (1975), Clarke-Stewart (1973) and Lamb (1976).

While the parent-child interaction studies have produced invaluable insight into the cognitive, social and linguistic development of hearing children, the method of natural home observation has had little use with deaf children and their mothers (Bodner-Johnson, 1981). The potential for identification and intervention with this population is vast, while our literature on affecting interaction variables is minimal, at least as they apply to the deaf child/mother process. The need for information on affecting variables of a deaf child's development cannot be overstated. We have sufficient literature to strongly suggest that the mothers (families) of these children may, to varying degrees, be emotionally affected by the child's handicap, in such a way as to seriously affect both quantity and quality of interaction with the deaf child. We are also aware of the compounding sensory restrictions of deafness in terms of communicative ability of the child and in terms of the subsequent necessity for a reciprocal adaptability of communication by the hearing parent of such a child. We have substantial literature suggesting that deaf children of deaf parents are better adjusted socially and emotionally, have better language skills and have better academic skills than their deaf peers with hearing parents (Schlesinger and Meadow, 1972; Vernon and Koh, 1970; Quigley and Frisina, 1961; White and Stevenson, 1975). These findings become increasingly important when one considers that the deaf children of deaf parents often come from lower educated families, have much less verbal stimulation and generally have lower socio-economic status (Vernon and Koh, 1970).

Considering these circumstances and the ability of deaf children of deaf parents to develop better social, language and achievement skills in spite of their situation, the need for observing the home environment and mother-child interactions of these families in order to more adequately understand some of the affecting variables involved becomes increasingly obvious. Historically, we have relied heavily on indirect methods such as questionnaires, anecdotal reports and interviews to retrieve information which has predictably proven fallible (Moss, 1965). It seems somewhat paradoxical that, until recent years, there has been little direct study of mother-child interaction, even though most theories consider these experiences fundamental for determining personality, as well as cognitive development and language development (Bower, 1979; McLean and Snyder-McLean, 1978). If one supports the "critical period" theory for development, our available literature on the deaf child from 0 to 4 years old becomes embarrassingly inadequate. This has to be considered one of the major reasons for the diversity of programs and approaches for deaf pre-schoolers, since without a knowledge of affecting variables in the home and subsequent needs that should be met in the pre-school, any approach to educating these children has to be done on a "hit or miss" basis. That is not to say that these approaches are, or are not, substandard, but rather that we need more information about the developoment of these children from birth, so that our educational decisions for them at a preschool level can be more soundly based on their own process of development, rather than interpreted from the development of their hearing peers. Bodner-Johnson (1981) suggests that family environment research:

> ...holds promise as a model for the study of deaf children and their family learning environments and fills a void regarding how we might conceptualize the effects of the handicapping condition on the cognitive and affective behaviors of the deaf child. (p. 4).

She goes on to suggest that past research dealing with the deaf (Schlesinger and Meadow, 1972; Gregory, 1976; Stinson, 1974; Meadow, 1968; Greenberg, 1980) points toward a real need to not only study the environmental process variables of deaf children, but to do so including a further variable which she describes as parental integration of deafness in the home.

C. Research Method

In reviewing the literature on mother-child interaction, it becomes increasingly obvious that, in research such as this, problems of method are abundant. Strategies of data collection that are not based on direct observation (interviews and questionnaires, for example) are not sensitive to the behavioural dynamics of interaction and may involve misleading and distorted information (Clarke-Stewart, 1973; Whitehurst, Novak and Zorn, 1972). However, critics of the direct observation method would argue that the presence of the observer makes the mother self-conscious and guarded, and therefore inhibits the natural situation. Most researchers would agree that we can never be completely certain of the influence of the observer on the mother-child interaction. In any case, present writers in this area (Moss, 1965; Wachs et al, 1971; Elardo, et al, 1975; Clarke-Stewart, 1973) agree that the longer and more frequent the observations are, the better the chances for facilitating naturalness in the mother. As Moss points out:

> ...it is extremely difficult to behave for a long period of time in ways contrary to characteristic behavioural tendencies. Not only because one eventually betrays himself but also because the tension is too great to sustain ego-alien behaviours for an extended period of time. (p. 485).

Another weakness posited against naturalistic observation methods is their lack of standardization. However, one cannot help but consider this a strength as well as a weakness. Given that our basic interests lie in the 'measurement' of the actual life situation, the natural structure and unique qualities of the home must be the relevant variables considered for the study of mother-child interaction.

The study of reciprocal mother-child interaction has found many advocates and inspired many methods of investigation (Gerwitz and Gerwitz, 1969; Sander, 1964, 1969; Wachs, Uzgiris and Hunt, 1971; Freidlander et al, 1972; Bronson, 1974; Bloom and McDowell, 1972; Clarke-Stewart, 1973; Moss, 1967; Kysela et al, 1978; Martin, Maccoby, Baron and Jacklin, 1981; Clarke-Stewart and Hevey, 1981). A major problem for many of these investigations involved the method for recording data. There are a number of choices. One can videotape for a particular time interval and evaluate the tapes at a later time. One can observe for a period, take notes and later write a narrative report. Another approach is to time-sample a pre-coded set of variables. Needless to say, the variety and combinations of possible recording methods is endless. The problems associated with each one are obvious. The present study has chosen a time-sample recording of concurrent mother-child behaviours through the use of direct, in-home observation. This method has stood the test of time and shown high reliability, as well as high percent agreement (.93) with continuous recording techniques using multichannel event recorders (McDowell, 1973). While this study recognizes the previously described inherent problems in collecting data this way, we feel, as does Moss (1965), that "...direct observation (despite its limitations) is the best method for studying mother-child relations" (p. 485).

D. Mother-Child Interaction Variables

The complexity of mother-child interaction creates a number of problems in terms of variables to be observed. Many investigators have avoided complexity by observing single variables such as motor behaviour or by observing selected pairs of variables such as infant crying and maternal attentiveness. Other investigators have neglected to take into account many of the relevant variables such as environmental stimulation and, pertinent particularly to this study, parental hearing status, as well as parental acceptance of the child's handicap. In fact, to date there has been no research dealing with the mother-child interaction process between deaf children and their mothers, especially as it relates to the above-mentioned variables.

The present study attempted to avoid many of these problems by preserving, as much as possible, the natural interaction patterns of mother and child. This is partially accomplished by using a Parent Child Observation System adapted from the work of Kysela et al (1978). The work of Kysela et al originated from the mother-child interaction studies of Clarke-Stewart (1973). The present scales (see Appendix A) have been adapted to accommodate the effects of deafness on communication and also to ensure that some evaluation of quantity and quality of interaction can be made.

Several investigators (Bloom, 1964; Plowden, 1967; Walberg and Marjoribanks, 1973; Elardo, Bradley and

Caldwell, 1975, 1977) have produced evidence attesting to the fact that important relationships exist between the home environment and the mother-child interaction process. This study will attempt to clarify these relationships in the context of the deaf child and his mother.

Finally, the cumulative research (Bower, 1979; McLean and Snyder-McLean, 1978) points toward the need for the child to have a primary caregiver with whom to establish communication and from whom to effect responses, for frequency of opportunity to communicate, for responsive adults, for multiple experiences and for the ability to attend to and give feedback to the caregiver. Combined with this would be appropriate input on the part of the caregiver and continuous reciprocal interaction. The observation procedure used in the home (see Appendix A) provides for both quantitative and qualitative measures of mother-child interaction, and considering the longitudinal nature of this study, should provide a realistic overview of the interactive profiles for all dyads being observed.

E. Data Anyalsis

Direct observation has become a major methodological tool in behaviour development research (eg. Bronfenbrenner, 1977; Parke, 1978). Unfortunately, the lack of simple data analysis models and methods for representing complex sequential relationships among behaviours, has often led researchers to deal inadequately with their data from only a descriptive point of view, losing information about the sequence events and permitting no causal inferences (Sackett, 1979). The present research goes beyond simple correlations among frequencies, and while descriptive statistics will be used to help evaluate the data, a major analysis technique will involve lag sequential analysis of contingencies among behaviours in the interaction process (Sackett, 1979).

A complete description of this technique is available in Sackett (1978). The basic analytic procedure involves the following steps: (1) choosing one of the behaviours as a criterion behavior (2) counting the number of times that every behavior (including criterion itself) follows the criterion as the next behaviour (Lag 1), the second behaviour after the criterion (Lag 2) and so on up to a maximum lag which is the largest sequential step of interest to the investigator. The overall frequency of occurrence of any behavior is represented by nMatch, while N represents the total of all behaviors in the data as a whole. The lag conditional probability for any behavior matching the criterion at any lag is therefore represented by nMatch/NTotal of criterion.

This study concentrates only on sequential behaviors occurring at a lag one interval, thereby limiting the analysis in two ways. First, only behavior in the immediately following event is examined in determining contingencies, and secondly, this type of analysis does not reflect the fact that the behavior of an individual engaged in interaction with another individual depends on his or her own behavior as well as the behavior of the partner. Most sequential dependency studies in the past have concentrated on one step sequences such as this (Sackett, 1978), perhaps due to the astronomical amounts of data generated by such research, and the difficulty to comprehend such huge amounts of data (eg. Altmann, 1965). Rosenthal (1973) posits one alternative:

> ...limiting the research to one segment of the interaction only, obtaining a substantial record of that segment and possibly limiting the investigation to one interacting unit at a time. (p. 310).

Lag one analysis of the data in this study attempts to meet these criteria.

Further to this rationale for lag one event only analysis, Altmann (1965), in a study of the social behavior of rhesus monkeys, found a great predominance of short term, lag one event, contingencies. More recently, Martin, Maccoby, Baron and Jacklin (1981), studied mother-child interaction through a sequential analysis using a variety of microanalytic methods. Martin et al found that:

> ...in general, most of the information about contingent responding...appear in the first interval following the criterion behavior. Conditional probabilities gradually decrease following the first interval. In no case is there any evidence for a delayed effect of partner behavior. (p. 149).

Although these authors refer to time rather than event sampling techniques, the period of time was so small (5 sec.) that it is assumed to have the same effect in event analysis.

Although there may be research questions for which a fine-grained picture of the rates of decay in partner effects are of interest, for the purposes of this study these analyses are not required. Behavioral results, contingent upon that person's previous behaviors, rather than those of the other member of the dyad, were not analyzed in this study. As noted by Martin et al (1981), it seems likely that as children grow older their interactions with their parents will be less and less a function of immediately preceding events of the other person and more a function of events remembered and responded to over a period of time. However, at the infant and preschool level, when children are still developing these patterns, the cross-dyadic effects are much more important, thus supporting the need for studying these effects at a microscopic level. This study does recognize, however, that the effects of a person's behavior, in influencing his later behaviors, are important issues to be addressed and that more research is clearly required before we can understand the complex and interdependant processes affecting interaction in the mother-child dyad.

III. Methodology

In order to investigate mother-child interactions over time, a longitudinal study was conducted with information collected over a four-month period. Six major data sources were used including: (1) observations of the behavior of mother-child pairs; (2) measures of the mother's acceptance of the child's handicap; (3) a comprehensive parental questionnaire regarding home background and developmental growth of each child; (4) medical, audiological and educational data via the child's medical and/or school records; (5) standardized test of developmental level; (6) a measure of the amount of stimulation in the home. The mean age of the children at Time 1 was 33 months and at the end of data collection was 36 months (See Table I for data collection schedule and testing session intervals).

A. Subjects

Nine mother-child pairs were recruited through the Association for the Hearing Handicapped, Glenrose Hospital and personal contacts. The children's ages ranged from 24 months to 46 months at the end of the data collection.

Two dyads included children with moderate to profound hearing loss and who had hearing impaired parents using a total communication approach in the home. Two other dyads included children with moderate to profound hearing loss and

TABLE 1

OBSERVATION AND TESTING SCHEDULE

		TIME											
		1	2	3	4	5		6	7	8	9	10	
1 (D-D)	*	12/02 '81	19/02 '81	26/02 '81	03/03 '81	10/03 '81	**	17/03 '81	15/03 '81	01/04 '81	07/04 '81	16/04 '81	***
2 (D-D)	*	06/02 '81	13/02 '81	20/021 '81	23/02 '81	07/03 '81	**	13/03 '81	20/03 '81	27/03 '81	13/04 '81	24/04 '81	***
3 (H-D)	*	02/02 '81	09/02 '81	16/02 '81	23/02 '81	02/03 '81	**	09/03 '81	16/03 '81	23/03 '81	30/03 '81	06/04 '81	***
4 (H-D)	*	13/02 '81	23/02 '81	27/92 '81	06/03 '81	13/03 '81	**	20/03 '81	27/03 '81	02/04 '81	09/04 '81	16/04 '81	***
5 (H-Do)	*	11/02 '81	18/02 '81	27/02 '81	04/03 '81	11/03 '81	**	18/03 '81	25/03 '81	01/04 '81	03/04 '81	08/04 '81	***
6 (D-H)	*	10/02 '81	16/02 '81	23/02 '81	02/03 '81	09/03 '81	**	16/13 '81	23/03 '81	31/03 '81	06/04 '81	14/04 '81	***
7 (D-H)	*	21/02 '81	23/02 '81	27/02 '81	06/03 '81	17/03 '81	**	23/03 '81	30/03 '81	13/04 '81	20/04 '81	23/04 '81	***
8 (H-H)	*	11/02 '81	18/02 '81	26/02 '81	04/03 '81	11/03 '81	**	18/03 '81	25/03 '81	30/03 '81	06/04 '81	15/04 '81	***
9 (H-H)	*	06/02 '81	13/02 '81	21/02 '81	26/02 '81	06/03 '81	**	20/03 '81	27/03 '81	31/03 '81	10/04 '81	14/04 '81	***

*1. ATTITUDE TOWARD DISABLED PERSONS SCALE (FORM A)
2. H.O.M.E. OBSERVATION FOR MEASUREMENT OF THE ENVIRONMENT
**1. DEMOGRAPHIC QUESTIONNAIRE
2. MEDICAL AUDIOLOGICAL AND EDUCATIONAL DATA
***1. ATTITUDE TOWARD DISABLED PERSONS SCALE (FORM B)
2. BROWN PARENT ATTITUDE SCALE
3. LEITER INTERNATIONAL PERFORMANCE SCALE

who had hearing parents who used a total communication approach in the home. One dyad included a child with moderate hearing loss and who had hearing parents who used an 'oral' communication approach in the home. Two more dyads included hearing children with hearing impaired parents who used a total communication approach in the home. A final set of dyads included hearing children with hearing parents.

Due to the small number of children fitting into the preceding categories, along with the complicating problem of the time commitment necessary to take part in the study, subject recruitment was difficult. Controlling and/or matching for affecting variables such as degree of hearing loss, cause of loss, onset of intervention, type of intervention, etc. was all but impossible. However, so as to consider each of these variables, each family filled out a comprehensive questionnaire (Appendix A), many of the details of which are discussed further in the following chapters. Table 2 presents a general demographic overview of each dyad while Table 3 specifically indicates the type and extent to which different communication systems are being used in each home.

B. Observation Visits

During the four month data collection period, ten observation visits were made to each home, and during each visit three twenty-minute samples of observation were recorded. Identical procedures were followed during each

TABLE 2

DESCRIPTIVE DATA

	1	2	3	4	5	6	7	8	9
Child C.A. at Begin. (Months)	28	42	28	32	36	21	37	26	43
Child C.A. at End (Months)	31	45	31	35	39	24	40	29	46
Child's Sex	F	M	M	F	F	F	F	M	F
Child's I. Q.	140	132	63	56	113	105	110	129	135
M/F Hear'g Status	D/D	D/D	H/H	H/H	H/H	D/D	D/D	H/H	H/H
Child's Degree of Loss	Prof.	Prof.	Prof.	Prof.	70-75db				
Child's Etiol. (*Prob.)	Genet.	Genet.	Un-known	*Pre matur.	Un known				
Child's Age of Onset	Birth	Birth	Birth	Birth	Birth				

TABLE 2 (Continued)

DESCRIPTIVE DATA

	1	2	3	4	5	6	7	8	9
Child's Age of Detection	Birth	3 mon.	6 wks.	6 mon.	2 - 2 1/2 yrs.				
Child's Age of Diagnosis	6 mon.	<1 yr.	1 yr.	10 mon.	2 1/2 yrs.				
Age Use of Child's Aids Began	1 yr.	1 yr.	15 mon.	1 yr.	2 1/2 yrs.				
Family Commun. Mode	TC	TC	TC	TC	Oral	TC	TC		
Type of Schooling (Child)	Home Based	Pre-school TC	Home Based	Home Based	Pre school Oral	None	Pre-school	Play-group	Play-school
Onset of Schooling (Child)	Fall 1980	Jan. 1979	Sept. 1979	Sept. 1979	Sept. 1980	--	Sept. 1980	Sept. 1980	Sept. 1980
Amt. Time Per Wk., in School (Child)	1 hr.	20 hrs.	1 hr.	1 hr.	2 hr.		10 hrs.	3 hrs.	3 hrs.

TABLE 3

MODE OF COMMUNICATION

	FAMILY													
	M1	C1	M2	C2	M3	C3	M4	C4	M5	C5	M6	C6	M7	C7
Hearing Status	Deaf	Deaf	Deaf	Deaf	Hear'g	Deaf	Hear'g	Deaf	Hear'g	Deaf	Deaf	Hear'g	Deaf	Hear'g
Advoc. Mode in Home	TC	TC	TC	TC	TC	TC	TC	TC	Oral	Oral	TC	TC	TC	TC
Use of Advoc. Mode (%)	91.3	93.5	99.2	98.5	54.6	29.8	98.7	99.5	88.6	61.7	94.6	74.3	73.2	88.9
Use of Oral Mode (%)	<1.0	0	0	0	33.5	29.8	<1.0	0	N/A	N/A	0	2	24.5	6.5
Use of Gest'l Mode (%)	<1.0	6.5	<1.0	1.5	11.9	22.3	<1.0	<1.0	11.4	38.3	2	7.8	1.3	4.2
Use of Manual Only Mode (%)	7.7	0	0	0	0	18.1	0	0	0	0	3.4	15.9	1.0	<1.0

visit. The observer arrived at the home at a time pre-arranged with the mother to maximize the likelihood that the child would be awake. Visits were deliberately scheduled to sample different times of the day in each home. After arriving at the home, the observer first talked with the mother briefly, inquiring about the child's health and schedule for that day and requesting the mother to continue her normal duties and ignore the observer, who would be watching and following the child.

The observer then wrote a brief descriptive paragraph about the setting (people present, T.V. on, toys out, health of mother and child, appearance, time of starting) and then began the observation recording. Using a two-columned observation sheet, the observer recorded the naturally occurring activities of mother and child for the next twenty minutes. In the right-hand column of the recording sheet, short abbreviations for the child's behaviors were written; in the left column, maternal behaviors were recorded. The behaviors noted by the observers were limited to the 9 maternal, 8 child and one neutral (no communication) behaviors outlined in Appendix B, and to a small group of qualifiers describing the type of communication used during interaction. Tables 4 and 5 briefly outline the mother and child behavior categories used in this study.

Behaviors of mother and child which occurred simultaneously were written on the same horizontal line on the recording sheet; sequential behaviors were written on

TABLE 4

MOTHER BEHAVIORS

Behavior	Code	Behavior Definition
Expressive Positive	Ex +	M smiles, laughs, hugs, kisses, cuddles, praises, encourages C.
Expressive Negative	Ex r	restrains, shouts, reprimands, punishes, indicates disapproval
Demonstration	Dem.	shows, guides, prompts, visually demonstrates
Stimulation	Stim.	gives toys, materials to C.
Questions	Q	asks question to C.
Informing	Inf.	labels, informs, tells about
Expansion	XP	clarifies, develops ideas, adds descriptions
Attention Seeking	AS	calls, gestures, pulls C., seeks C.'s attention
Directing	Dir.	gives directions, tells what to do.

TABLE 5

CHILD BEHAVIORS

Behavior	Code	Behavior Definition
Expressive Positive	Ex +	C smiles, laughs, hugs, kisses, cuddles, holds M.
Expressive Negative	Exp -	pushes away, resists, turns head (body), cries, screams
Imitation	Im.	mimics verbal or non-verbal cues of mother
Plays with Materials	Pl	manipulates, holds, uses toys and/or objects
Responds	RSP	physical, verbal or non-verbal response and/or compliance with mother's directions.
Questions	Q	asks, shows supplement or need for clarification
Informs	Inf.	labels, informs, tells about
Attention Seeking	AS	calls, gestures, pulls, seeks M's attention

alternate lines. Recording was done using a fixed interval, event recording technique so that every twenty seconds, at the sound of a timer from an earphone, the observer made a horizontal mark on the notebook line. A single behavior was written only once in a twenty second period unless it was stopped and/or interrupted by another behavior and then resumed. A continuous behaviour was indicated by a vertical line for as many time periods as it continued (see Appendix B for a sample page of the recording).

After observing for twenty minutes, the observer described in a few sentences what had happened during the observation including inferences and comments. This was repeated twice more during the visit, making a total of one hour of observation and taking approximately one-and-a-half hours to complete.

All possible attempts to minimize the effects of the observer on the mother-child interaction process were made by having observers who were non-threatening and friendly, and who consistently visited the same families. As well, these families were visited on a regular basis over an extended period of time, in order to facilitate naturalness in the mother and thereby provide a more realistic evaluation of the interaction process being observed.

C. Observer Training and Reliability

Prior to the beginning of this study, the four observers, including the author, spent approximately one month learning the behavior categories and practicing their coding skills with the use of videotapes. Observers were initially asked to read carefully the observer training guide (see Appendix B) and to learn and practice the behavior categories described in the guide. Three videotapes were used in training, one of a hearing mother and deaf child using 'total communication', one of a deaf mother with a deaf child using 'total communication' and one of a hearing mother and hearing child . All behavior categories were adequately sampled across tapes and quality of production was reasonable. These observers included three female Caucasians while the fourth was male Caucasian. One was a house parent at the Alberta School for the Deaf (observed four pairs), one was a Linguistics student at The University of Alberta (observed two pairs), one was a housewife with considerable past experience in early child development (observed two pairs) and the last observer was the author (observed one pair).

The observer working with the four dyads with deaf parents was proficient in American Sign Language and 'total communication' methods. Two other observers worked with hearing families with deaf children who used either an 'oral' or 'total' communication approach. Both of these observers were proficient enough in sign language to understand all of the child's signs and all parental signs were accompanied by their verbal counterpart.

Inter-observer reliability coefficients were calculated between observers using nominal and marginal simple percentage agreement measures (Frick and Semmel, 1978). These percentage agreement measures were calculated three times: at the beginning of the study, between the fifth and sixth observations and at the end of the study. Nominal agreement, generally the more conservative of the two measures, is calculated by comparing category agreement on individual events. This was calculated using ten randomly selected two minute sections of a forty minute videotape. Marginal agreement, on the other hand, was calculated by comparing total frequencies of categories across a number of events and therefore was not necessarily dependant on agreement on individual events. All reliabilities were checked in the clinic using videotapes over a sixty minute period equal to a full observation session in the home.

Marginal percentage agreement between observers before the study began ranged from 81.1% to 93.2%. Nominal percentage agreement at this time ranged from 78.4% to 88.9%. At the approximate midpoint of the study, marginal percentage agreement ranged from 82.7% to 91.3% while nominal agreement ranged from 70.1% to 83.4%. The final marginal percentage agreement after the study ended ranged from 79.8% to 88.4%, while the nominal agreement at this point was 69.7% to 84.3%.

The mean overall marginal percentage agreement was 86.9%, while the mean nominal percentage agreement overall was 80.4%. Reliability coefficients for each observer during these time periods is shown in Table 6.

D. Parental Attitudes Questionnaire

Parental attitudes toward deafness were assessed using the *Attitudes Toward Disabled Persons Scale* (Yuker, Block and Younng, 1970) adapted for deaf persons. The scale consists of three alternate forms, two of which were used in this study. The forms used consist of thirty items each and are in Likert format; the responses range from "I agree very much", scored +3, to "I disagree very much", scored -3. There is no neutral or zero point on the scale. Scores range from 0 to 180 on both Forms A and B, with higher scores reflecting more positive attitudes toward disabled persons and vice versa. Published median reliability coefficients range from .71 to .83 for Forms A and B while equivalency reliability coefficients derived from the split-half method range from .75 to .85.

The scale was administered to each mother by the observer working with that dyad. Two alternate forms, A and B, were used with each mother, one being administered before observations began and one at the end of the study. A complete outline of Forms A and B of the ATDP scales adapted for deaf persons is contained in Appendix C.

TABLE 6

OBSERVER RELIABILITIES EXPRESSED AS MEAN PERCENTAGES

Reliability Type	Time 1	Time 2	Time 3	Ov'all $\bar{x}$
Intraobserver ($\bar{x}$ %)	92.3	89.8	90.1	90.7
Interobserver (Nominal)	86.6	78.1	76.4	80.4
Interobserver (Marginal)	89.7	88.8	82.2	86.9

E. Parental Expectation Questionnaire

As a supplement to the information gathered by the ATDP questionnaire described above, parental attitudes and expectations were further measured using the *Brown Parent Attitude Scale - Your Child Thirty Years from Now* (Brown, 1969). Since no validity or reliability data are available for this scale, the rating procedure developed by Corson (1973) was used to enhance comparisons between the two studies.

The scale consists of nineteen items rated by the parents from "very good chance" to "no chance at all" and scored from 1-5 as outlined in the description of the scale in Appendix D. A maximum score of 95 was possible for each mother and can be used to compare expectation among the mothers in terms of having more like "hearing parent" values or less like "hearing parent" values (Corson, 1973). A further breakdown of this scale, in terms of analyzing the parental acceptance factor, was used and is further described in the following chapters.

The scale was administered once to each mother at the end of the study by a trained teacher of the deaf with a graduate degree in deaf education. The scale took approximately fifteen to twenty minutes to complete and the only help given by the administrator was in terms of explanation or clarification of the items.

F. Parental Demographic Questionnaire

A large amount of background information, demographic and developmental data were collected on each child and family via a parental questionnaire which was constructed from a number of similar questionnaires used for such purposes (Appendix A). The questionnaire was designed to provide maximum background information on each child and family so as to maximize the interpretation of other data being collected. Dealing with a deaf population, researchers are often stymied by small numbers and high variety in terms of affecting variables (Moores et al, 1978). While this study cannot solve these problems, it is hoped that by providing a maximum amount of relevant background information on each child and family, these problems may more accurately be addressed.

The questionnaires were delivered to each family by their respective observers who were available to help interpret any questions the families might have. All questionnaires were completed and returned between the sixth and ninth observation sessions.

G. Medical, Audiological and Educational Data

Each family was given a consent form (Appendix E) to sign to allow the author to examine medical and/or educational records of their child. These records were to serve two purposes: (a) to collect data that parents were unable to provide in the parental questionnaire and (b) to provide further data such as audiograms, speech reports and educational reports that were available for these children.

This information was collected by the author via the child's hospital and preschool records where applicable.

H. Leiter International Performance Scales

Each child's developmental level was determined through the administration of the *Leiter International Performance Scales* (Leiter, 1969), given one to two weeks following the observations. The Leiter was developed for the purpose of providing a culture-free, non-verbal method of assessing general intelligence based primarily on abstract concepts. The scales provide extensive opportunities for observation of an individual's approach to problem solving and emotional reactions to a variety of tasks. They range from the simple pairing of colors, shapes and objects at the earliest levels, to very complex analogies, perceptual patterns and concepts at the highest levels.

Since the *Leiter Scales* require no verbal communication and can rely on pantomime instruction or sign language, they are particulary suited for the psychological assessment of individuals with speech and hearing impairment (Ratcliffe & Ratcliffe, 1979). Research has suggested that the predictive validity of the Leiter is relatively high and that considerable emphasis can be given to the Leiter results in predicting academic success for deaf children (Birch & Birch, 1956; Birch, Stuckless, & Birch, 1963; Taddonis, 1973). The median correlation between the Leiter and the Stanford-Binet was .77 for a cluster of studies using both scales between 1951 and 1970 (Ratcliffe & Ratcliffe, 1979). Other studies using hearing impaired children showed correlations between the Leiter and WISC Performance Scale to be .78 (Ritter, 1976); between the Leiter and Nebraska Test of Learning Aptitude to be .77 (Mira, 1962); and between the Leiter and Ravens Colored Progressive Matrices to be .79 (Ritter, 1976). Published split-half reliabilities for the Leiter range from .91 to .94 based on several studies as indicated in Anastasi (1976).

The Leiter Scales were administered, using pantomime, by a teacher of the deaf with a graduate degree in deaf education. Testing procedures were taken directly from the manual and were consistant across all children.

I. Home Observation for Measurement of the Environment

The *Home Observation for Measurement of the Environment Scale* (Caldwell and Bradley, 1979) was used to evaluate each child's daily environment. The H.O.M.E. is designed to be an easily administered, observationally based inventory which provides an index of the quality and quantity of social, emotional and cognitive support available to young children, from birth to six years of age, within the home setting. The H.O.M.E. inventory is divided into two separate scales: one for children from birth to three years and another for children from three to six years of age.

The H.O.M.E. inventory for families of infants and toddlers (0-3 years) contains forty-five items representing the following six types of environmental forces, as arrayed through a factor analysis procedure: (1) emotional and verbal responsivity of the mother, (2) avoidance of restriction and punishment, (3) organization of the environment, (4) provision of appropriate play materials, (5) maternal involvement with the child, and (6) opportunities for variety in the daily routine.

The H.O.M.E. inventory for families of preschool aged children (3-6 years) contains fifty-five items representing the following eight types of environmental forces, as arrayed through a factor analysis procedure: (1) stimulation through toys, games and reading materials; (2) language stimulation; (3) physical environment: safe, clean, and conducive to development; (4) pride, affection and warmth; (5) stimulation of academic behaviours; (6) modelling and encouragement of social maturity; (7) variety of stimulation; and (8) physical punishment.

Internal-consistency (KR-20) coefficients for the different subscales are reported to range from .38 to .89 over both versions of the H.O.M.E. The internal-consistency coefficient for the total scale for 0-3 year olds was .89 and for 3-6 year olds was .93. Concurrent validity correlations reported were moderate (.25 - .55) between the H.O.M.E. subscales and maternal education, paternal presence, paternal education, paternal occupation and crowding in the home. Correlations between subscales and welfare status and maternal occupation were smaller in magnitude but still positive. The criterion-related validity of the inventory has been explored in many studies (Cravioto & De Licardie 1972; Elardo, Bradley & Caldwell, 1975; Wulbert, Inglis, Kriegsmann & Mills, 1975), with results consistently supporting the ability of the inventory to distinguish among environments varying in terms of several indices of quality.

The H.O.M.E. was administered by a teacher of the deaf who was proficient in sign language and who has a graduate degree in education of the deaf. Interview procedures were followed as per the H.O.M.E. manual and each interview/observation setting took one to one-and-a-half hours to complete.

J. Maternal Responsiveness and Effectiveness

Combined with identifying conditional probabilities for sequential behaviors among and between mother and child, operational measures of mother's responsiveness and mother's effectiveness were also identified and analyzed using the same technique. A number of specific child behaviors which might be expected to elicit maternal responses were selected from the work of Clarke-Stewart (1973). These included child attention seeks, child questions, child negatives, child informs and child positives. For each of these child behaviors, a set of maternal behaviors were selected which would indicate an 'appropriate' response to the specific child behavior. For example, if child attention seeks, any sequential maternal behavior except a negative would be considered appropriate. In this way, a global measure of responsiveness is available along with a specific breakdown of the type of response through the conditional probability tables. A breakdown of the operational definitions of maternal responsiveness and maternal effectiveness are available in Tables 7 and 8. In calculating the responsiveness score, each child's behavior was considered and the next sequential maternal event tabulated, scoring 1 for appropriate behaviors and 0 for inappropriate or no behaviors.

Maternal effectiveness scores were calculated in a similar manner. For a set of specific maternal behaviors, certain child responses were selected which, it was judged, a priori, would indicate that the maternal behavior was effective or appropriate. Scores were again calculated using the next sequential event as the criterion with +1 being scored for appropriate responses (Table 8), 0 for no responses and -1 for maternal behaviors eliciting negative responses by the child. Scores for each behaviour and total scores were then summed and converted to proportions by dividing them by the total recorded frequencies for those particular behaviors. This enables an analysis of responsiveness and effectiveness as per each criterion behavior and a more global score for comparison across

TABLE 7

MATERNAL RESPONSIVENESS

Child Behavior	Responsive Maternal Behaviors
Attention Seek	Mother is Positive, Demonstrates, Directs, Stimulates, Questions, Informs, Attention Seeks, or Expands
Question	Mother Demonstrates, Directs, Stimulates, Questions, or Informs
Negative	Mother is Positive, Demonstrates, Directs, Stimulates, Questions, Informs, Attention Seeks, or Expands
Inform	Mother is Positive, Demonstrates, Directs, Stimulates, Questions, Informs, Attention Seeks, or Expands
Expressive Positive	Mother is Positive

TABLE 8

MATERNAL EFFECTIVENESS

Mother's Behavior	Child's Behavior
Stimulate	Child is Positive, or Plays
Direct	Child Responds
Expressive Positive	Child is Positive
Demonstrate	Child Imitates
Question	Child Informs or questions
Inform	Child is Positive, Imitates, Questions, or Informs
Attention Seek	Child is Positive, Negative, Imitates, Responds, Questions, Informs or Attention Seeks

dyads. These procedures are based on similar operationally defined categories of 'responsiveness' and 'effectiveness' in the research of Clarke-Stewart (1973).

IV. Results and Discussion

The data generated by research of this type are extensive and in many ways difficult to interpret without some clear patterns of focus. In order to enhance readability and to focus on predominant patterns observed throughout the data analysis, the patterns will be reviewed and discussed in light of present and past research in the field. A more comprehensive review of all of the data analysis results is presented in Appendix F for the reader who wishes to focus on specific patterns and cross patterns.

This chapter will be presented in five sections dealing with the following: (A) The Sample (B) Patterns of Parental Attitudes, Expectations and Acceptance (C) Patterns of H.O.M.E. Stimulation (D) Patterns of Interaction (i) Time (ii) Behaviors (iii) Associated Behaviors and (E) Patterns of Maternal Responsiveness and Effectiveness.

A. The Sample

Eight of the nine families in the study were from middle-class backgrounds, while one family was from a lower-class home. The three deaf children of hearing parents were adopted, while all other children in the study were of natural parents. The adoptive status of the three children mentioned did not appear to affect the interactive process within dyads directly, although it is certainly a factor to be considered when interpreting these results. Further research into the question of adoption and its effects on mother-child interaction seems necessary before any clear understanding of the effects of adoption can be realized. A demographic and behavioral description of each group is outlined below to enhance the reader's understanding of the groups as they are presented further in this chapter. Each dyad is described in terms of, first, the hearing status of the mother (i.e.) hearing or deaf (H or D) and, second, the hearing status of the child. One further subscript is used to differentiate the 'oral' dyad which is described as H/Do (hearing mother, deaf child - oral approach).

Group One (D-D)

Group One consisted of two dyads of deaf mothers and deaf children. Both children had profound hearing losses and were diagnosed and fitted with hearing aids before one year of age. Total communication was the advocated mode of communication in both homes and in each, both mother and child were fluent in its use. Tables 2 and 3 present all other descriptive data on these dyads.

Specific interaction patterns of these dyads will be reviewed throughout this chapter. However, on the whole these dyads spent just over fifty percent of their time communicating. Predominant mother behaviors were informing, attention seeking and questioning while predominant child behaviors were scattered, the highest occurring behavior being informing. Mothers used directions and questions less than the overall mean rate and used behaviors of demonstration, stimulation, negatives and attention seeking more than the overall mean rate of the group. Other behaviors varied between families. The children used negatives and responding to directions less than the mean rate and used positive behaviors more than the mean rate. Other children's behaviors ranged above and below the mean rates with child one being above the mean in imitating and questioning behaviors and child two above the mean in attention seeking behaviors. Overall both dyads interacted well with high rates of effectiveness and responsiveness (discussed later in the chapter) and appeared to have a good, communicatively competent, reciprocal interaction.

Group Two (H-D)

Group Two consisted of two dyads of hearing mothers with deaf children who advocated a total communication approach in the home. Both children had profound hearing losses and were fitted with hearing aids at twelve and fifteen months of age, respectively. Both children had pre-natal and/or birth irregularities possibly related to the etiology of deafness. Child four was also legally blind at birth, although corrective glasses have enabled her to see well enough to sign, read signs, and manoeuver around the house without much difficulty. Mother three, of this group, although advocating a total communication approach in the home, used this approach for only half of her communications. Tables 2 and 3 present all other descriptive data on these dyads.

These dyads were very different in their interaction patterns with dyad three interacting for a total of 18 percent of the total observation time (lowest overall) and dyad four interacting for 76.7 percent of the total observation time (highest overall). Mother three had higher proportions of negatives, positives and stimulation behaviors than the overall mean, but lower proportions of all other behaviors. Child three spent fifty percent of his interactive time being negative and attention seeking but was also positive more than the overall mean percentage rate. This dyad interacted very little and appeared to be hampered by a lack of awareness of one another's communication cues as well as an apparent apathy for any type of communication on the part of mother.

Dyad four was dominated by the communicative attempts of mother who contributed 76% of the total dyadic interactions. This mother informed, directed and was negative more than the mean overall rate while the child in this dyad responded to directions and was both positive and negative more than the mean overall rate. Overall, this dyad also appeared to be hampered by a lack of understanding of communicative cues beyond the "directing", more gestural level. However, there appeared to be a sincere attempt on mother's part to generate communication which may also have been hampered by the child's poor eyesight and possible low mental functioning.

Group Three (H-Do)

Group Three consisted of one dyad with a hearing mother and a deaf child who used oral communication in the home. The child had a moderate hearing loss and was not diagnosed and fitted with hearing aids until two-and-one-half years of age. Tables 2 and 3 present all other descriptive data on this dyad.

This dyad spent 59% of the total observation time interacting, with both mother and child contributing approximately the same amount to the interactive events between them. Mother used informing, questioning, directing and positives more than the overall mean percentage rate while the child used more informing and imitating than the mean rate for all children. Both mother and child in this dyad used mainly oral communication and appeared to understand one another well. However, maternal effectiveness in eliciting appropriate responses from her child was below fifty percent indicating the posibility that the child may not fully understand mother's communications. In any case this dyad interacted with many of the same patterns common to the hearing dyads. The question of whether there was an understanding between them is not completely clear, but from an interactive point of view the dyad did appear relatively strong.

Group Four (D-H)

Group Four consisted of two dyads of deaf mothers and hearing children. Total communication was the advocated mode of communication in both homes and both children could express themselves fluently, verbally and through sign. One of these children, of family six, was the only child with no preschool and/or experience with structured intervention. Tables 2 and 3 present all other descriptive data on these dyads.

These dyads were also somewhat different in their interaction patterns with dyad six interacting for a total of 73 percent of the total observation time and dyad seven interacting for a total of 46 percent of the total observation time. Mother six had higher proportions of informing, questioning, expanding, stimulating and demonstrating than the overall mean rate for all mothers. Child six had higher proportions of attention seeking, informing, questioning and imitating than the overall mean rate for all children. However, dyad seven showed many different patterns. Mother seven had higher proportions of attention seeking, questioning and positive behavior than the overall mean rate while her child had higher proportions of informing and positives than the overall mean rate for children.

In essence, both dyads appeared communicatively competent and able to generate and receive the interactive cues of the other member of the dyad. The major difference in the dyads was that mother six actively pursued the teaching of her child through relatively continuous interaction, the reasons for which may partially be due to this mother being a trained teacher of the deaf, combined with the fact that she worked all day and therefore saw her child for only short periods. Mother seven, on the other hand, also a trained teacher of the deaf, was at home with her child all day and was more passive in her interaction with her child, usually letting the interaction take a more natural, less intrusive form. As with mother six this also may partially be a function of the number of contact hours spent with the child.

Group Five (H-H)

Group Five consisted of two dyads of hearing mothers with hearing children, using verbal English as their communication mode in the home. Tables 2 and 3 present all other descriptive data on these dyads.

As with many of the other groups, the dyads in this group had very different interaction patterns. Dyad eight interacted for only 35% of the observation time while dyad nine interacted for 64% of their observation periods. Mother eight had lower than the overall mean proportions of all behaviors except questioning and directing. Her child, on the other hand, had higher than the overall mean proportions of attention seeking, informing and responding behaviors. This dyad had the second lowest number of interactions overall and, much like dyad three, while basic needs were met, there appeared to be little attempt on mother's part to generate active reciprocal interaction within the dyad. Both mothers in this group tended to cluster a large percentage of their behaviors into questioning and informing while behaviors such as negatives, demonstrating, attention seeking and expanding took up less than one percent of their total interactions.

Mother nine interacted with her child much more than mother eight and had higher than the overall mean proportions of informing and questioning behaviours. Child nine was also more interactive than child eight and had higher than the overall mean proportions of informing and questioning behaviors as well. This was the only child of the entire group to contribute more to the overall interactions within the dyad than the mother. This mother used most of her daily routine as an interactive opportunity with her child and the dialogue between them was continual. Overall, mothers who initiated alot of interaction tended to have children who also generated alot of interaction in the dyad. However, even within these communicatively competent dyads, if the mother was passive the interactions of her and her child were very similar to other less communicatively competent dyads. Cause and effect relationships are not completely clear but will be discussed further in this chapter.

B. Patterns of Parental Attitudes, Expectations and Acceptance

Yuker, Block and Younng (1970) indicate that scores on the *Attitudes Toward Disabled Persons Scale* may be interpreted as reflecting the subject's perception of the deaf as being either the same or different from the hearing; a high score indicating the perception of the deaf as being similar to the hearing, and a low score indicating the perception of dissimilarity between the deaf and the hearing. The perception of differences in characteristics of, and treatment of, the deaf might be interpreted as rejection of the deaf, or as prejudice. At the same time, this scale may indicate the degree of positive and negative stereotyping in the hearing person's attitudes towards deaf people. Yuker et al (1970) also point out that the respondent who is deaf and who perceives deaf people as different from hearing people, may be projecting his attitude toward himself. In this sense, the *ATDP* may represent a measure of the deaf person's self-concept. However, the deaf person's low ratings on this scale may also reflecct an awareness of the real differences between deaf and hearing people, differences which are not necessarily viewed as negative by the deaf person. The design of the ATDP scales did not allow for accurate interpretation as to the reasons for the mother's ratings on certain items. Hence the issues of poor self-concept and genuine awareness were many times difficult to differentiate. The results were therefore interpreted as the ATDP manual recommends but should be considered in further research in light of the questions raised regarding the validity of such an interpretation.

As well, after using both forms (A and B) of the ATDP and discussing the results with both deaf and hearing mothers, some concerns as to the validity of the questions presented on these scales arose. Both forms of the ATDP tend to be stated in such a way so as to coerce the subject into answering, many times on the basis of emotion. While parts of the scale may reflect true attitudes of the mothers concerned, many mothers, as well as the author, felt that a more anecdotal questionnaire would give a much more accurate, less emotionally charged reflection of their attitudes about deafness. The results below should be considered with these points in mind.

Results from this scale were similar in pattern to those found by Corson (1973) in a study emphasizing the difference in acceptance of deafness between deaf and hearing people. As in Corson's study, this study found that overall, the attitudes of deaf parents were significantly more negative than those of hearing parents in areas of generalized rejection, inferred emotional consequences and overall opinion. These attitudes may possibly reflect feelings internalized by deaf people from being exposed to society's attitudes towards people who are different. These findings are also supported by Schroedel and Schiff (1972), who report similar results from a number of studies involving deaf and hearing parents. Schroedel and Schiff postulate that these negative attitudes towards deafness by the deaf themselves might originate from "misperceived or misconceived attitudes of hearing persons towards deaf persons" (p. 69). These results are also consistent with past studies of attitudes of both handicapped and non-handicapped individuals towards disabled persons (Yuker, Block, and Younng, 1970).

Parental attitudes were further explored using the *Brown Parent Attitude Scale* (Brown, 1969). This scale measured parent's future expectations for their children and when further analyzed, also gave *Acceptance of Deafness* scores as described by Corson (1973). Parental expectations for their children's future were highest in hearing parents with hearing children and lowest overall in hearing parents with deaf children who used total communication. All parents with deaf children scored below the overall mean level of expectation, but in most cases this simply indicated a more realistic appraisal of what their children would achieve in the future. For example, some of the questions that parents of deaf children scored lower on include: "will be a college graduate", "will have speech that is easily understood by most people", "will be thought of as having normal hearing" and other questions directly reflecting the child's hearing status. While expectations of these parents therefore appear lower, they also reflect a certain degree of realism on the parent's part, as well as some degree of acceptance of the limitations of deafness as a handicap.

The question of acceptance was further analyzed using Corson's (1973) procedure to select out questions that would reflect parental acceptance of deafness. Deaf parents were found to be more receptive than hearing parents to the idea that their children would use sign language as their preferred means of communication, would have more deaf friends than hearing friends, would be married to a deaf person, would have difficulty in using English correctly and would use both oral and manual communication. These findings agreed with earlier studies (Meadow, 1968; Corson, 1973) that deaf parents have more positive acceptance towards deafness than hearing parents. The hearing mother in the dyad using oral communication had higher expectations than other hearing mothers with deaf children, but also had very low *Acceptance of Deafness* Scores. This mother rated her child as if the child were hearing and had the same general scores as the hearing parents of hearing children. This was also consistent with Corson's (1973) findings that parents of 'oral' subjects expressed significantly greater 'hearing parent' values than did parents using total communication.

Overall, deaf parents appear to have a relatively poor self-concept, or at least a somewhat negative image of deaf people regarding their similarity to hearing people. As stated earlier, these results do not necessarily indicate a poor self-concept but in some cases may reflect a genuine awareness of the real differences existing beetween deaf and hearing people. These attitudes may be a reflection of deaf people's experience in attending separate schools, their lack of academic opportunity after school, poor vocational choices, limited job market and their own parent's attitudes about deafness. Hearing parents, on the other hand, appear to believe that deaf people are innately the same as hearing people with all of the same needs, rights and obligations as their hearing counterparts. However, these people consistently indicated a lack of awareness of deaf people, most of them never having met nor having been friends with a deaf adult. Their attitudes therefore may clearly have been a result of a basic naivety about deaf people and not necessarily a true belief based on experience.

Parental expectations for their child's future appear to be affected more by parental acceptance of their child's handicap. This may be a result of the scale used, or more likely, a function of the parent's perceptions of the limitations of the handicap. In any case, deaf parents with deaf children had moderate expectations for their children but had the highest *Acceptance of the Handicap* scores, perhaps again reflecting their own experiences in growing up with a hearing impairment. Two hearing mothers with deaf children also had moderate *Expectation* scores as well as *Acceptance of Deafness* scores. These mothers tended to score many scales in a non-committal way, taking the 'middle-of-the-road' approach in many instances. In discussing this with these mothers, this approach appears to indicate a genuine uncertainty about what to expect of their children, reflecting also a lack of input from outside sources as to their children's potential. Finally, the 'oral' mother had high expectations for her child, but scored the lowest *Acceptance of Deafness* scores of the entire group with deaf children. This may be consistant with Altman's (1973) findings that mothers of more linguistically competent oral children placed more pressure on their children to perform, since this mother's *Attitude*, *Expectation* and *Acceptance* scores were much closer to those of parents with hearing children than they were to those with deaf children.

C. Patterns of Home Stimulation

All families in this study scored relatively high on the *H.O.M.E. Scale* compared to the normed population. Two mothers scored in the lower tenth percentile on one subtest each. A deaf mother with a deaf child, the lowest SES family, scored low on the *Organization of the Environment* sub-test which, as Caldwell and Bradley (1979) point out, is directly influenced by mother's and father's education, as well as father's occupation and presence. The parents in this family had a low educational level, were separated during a major portion of the study, and the father was unemployed for most of the study as well, all influencing factors on this family's only low score on the *H.O.M.E.* scale.

A hearing mother with a deaf child also scored in the lower tenth percentile band on one sub-test, *Avoidance of Restriction and Punishment*. Caldwell and Bradley (1979) indicate that beyond one year of age, this category is significantly related to the amount of crowding in the home. This particular home included both parents, an adult boarder, three natural children and two foster handicapped children. Along with this, the child in question was also legally blind as well as deaf and often needed to be restricted from environmental hazards of which she was unaware. The interviewer in the home indicated that most restriction was legitimate for the child's safety, and other scores on the *H.O.M.E.* by this family support this conclusion, since all other categories were in the upper twenty-fifth and tenth percentile bands. These points are important to consider when maternal behaviors are discussed, since this mother had the highest rate of negative interactions, the implications of which are further discussed in this chapter.

Three families scored in the lower twenty-fifth percentile band on one sub-scale each of the *H.O.M.E.* A hearing mother with a deaf child scored in the lower twenty-fifth percentile band on the *Maternal Involvement* subtest. This mother and child had the lowest total interaction events over all families and when they did interact, the length of interaction bouts was second lowest over all families. A low score for maternal involvement would seem valid for this family.

Another hearing mother with a deaf child scored in the lower twenty-fifth percentile band on the *Variety In Daily*

Stimulation subtest of the *H.O.M.E.* While this subtest is moderately correlated to parental education level and crowding in the home (Caldwell and Bradley, 1979), there is no indication that these factors are influential in this case. A deaf mother with a hearing child also scored in the lower twenty-fifth percentile band on one subtest of the *H.O.M.E. Scale*. This subtest was the *Modelling of Social Maturity*, and although correlated with amount of crowding in the home (Caldwell and Bradley, 1979), this factor did not appear influential in this case.

In general, families obtained relatively high scores on the *H.O.M.E. Scale* and its value in differentiating families in any way, other than those discussed above, was rather limited. This may be a reflection of the general nature of the scale or possibly an indication that no real differences in home stimulation exist between dyads affected by deafness and associated language problems. Further research is needed to determine if in fact any differences do exist in the stimulation patterns of homes affected by deafness and language delay and those that are not. However, in similar research of mother-child interaction using the *H.O.M.E. Scale* (Wulbert, Inglis, Kriegsmann and Mills, 1975), researchers found significant discrepancies in *H.O.M.E.* scores between normal children and language-delayed children. It is notable that the greatest discrepancies occurred in the three categories which deal directly with mother and child interaction: (1) emotional and verbal responsiveness of mother, (2) avoidance of punishment and (3) maternal involvement with child. Wulbert et al (1975), found also that the *H.O.M.E.* inventory scores were statistically unrelated to socio-economic status and showed no discrepancies between the normal group and a third group of Down's Syndrome children. While the numbers in this study were too small to note statistically significant patterns previously discussed, it is noteworthy that four of the five families with relatively low subtest scores on the *H.O.M.E.* had deaf children with subsequent verbal language delay, and also that the two lowest subtest scores were both in categories described by Wulbert et al (1975) as showing the greatest discrepancies between normal and language-delayed children.

Elardo, Bradley and Caldwell (1977) further explored the relationship between children's home environments and their language development, finding similar relationships as discussed above. However, the question of causal inference is difficult to address from correlational studies such as these and, while relationships may exist between *H.O.M.E.* scores and children's language capabilities, there seems to be a great need for further exploration into the question of cause and effect before intervention is planned from these assumed contingencies.

D. Patterns of Interaction

Interaction Time

Results of time spent interacting varied considerably across families. Children and mothers in this study interacted more ($\overline{X}$ = 53%), overall, than those in a similar study of hearing children by Clarke-Stewart (1973) ($\overline{X}$ = 36%). However, the mean age of the Clarke-Stewart group was some twenty months younger than the group in this study and therefore much less communicatively mature. This is confirmed in later work by Clarke-Stewart and Hevey (1981) where they found differences in mother-child interactions related to the child's increasing maturity. Children's communication abilities increased from twelve to thirty months at which stage the ratio of mother-to-child communications were close to one-to-one. Ratios of mother-to-child communications were much more variable in this study, with the lowest ratios being for two hearing mothers with deaf children, who accounted for over two-thirds of the total communication between them and their children. This does not necessarily contradict Clarke-Stewart's findings but rather adds one further compounding variable affecting the ratio of communication within any dyad involving a sensory handicap, that is, the ability of the dyad, as a unit, to communicate with the same system and at the same level. Collins (1969) also found that hearing mothers with preschool deaf children (mean age 40 months) accounted for approximately two-thirds of the total communication within the dyad, and as well used a variety of modes to convey these communications. It appears that in many cases, especially that of hearing parents with deaf children, communication systems used within the dyad are often less consistent or refined than those used in dyads where both mother and child more naturally use the same language. This is supported by the low reciprocal interaction ratios of hearing mothers and deaf children using total communication, as well as the effectiveness of these mothers, the lowest of all mothers. Greenberg (1978) also noted major interactive differences in hearing parents who signed well and who used this language with their child from birth, and parents who were what he termed "non-optimal" in their use of total communication. The effects of the communicative competence of the dyad as a unit will no doubt influence both quality and quantity of mother-child interactions.

Interaction Behaviors

Specific maternal behaviors closely parallelled those described in earlier work by Clarke-Stewart (1973). Mothers in her study spent 40% - 45% of their interacting time labelling, describing, and talking about things in the environment, compared to a mean overall rate of 45.7% in this study. Other behaviors were similar in proportion as well, with the most relatively infrequent behaviors in both studies being positive expression, and stimulation with toys and objects. Even less frequent were demonstration and expanding behaviors, which accounted for less than 5% of mothers' behaviors overall. Collins (1969), in his study of hearing mothers of deaf preschoolers, also found the highest concentration of maternal behaviors to be confined within the classes of informing, questioning and directing (>80%). Greenberg (1978), in a study involving parents of deaf children, suggests that the greatest amounts of maternal questioning and demanding might be found in dyads with various types of communicative handicaps. This was not completely supported in this study, since dyads considered to have no communication handicaps, that is, hearing mothers with hearing children and deaf mothers with deaf children, used questioning quite differently relative to their communication patterns. In fact, all mothers with hearing children used questioning more than mothers with deaf children. Dyads with the greatest communication problems, hearing mothers with deaf children, did use directing behavior more as a group. However, no mothers used directing to the extent described by Collins (1969) or Greenberg (1978). Schlesinger and Meadow's (1976) suggestion that the high rate of directions by mothers of deaf children was probably a realistic adaptation necessary to control their deaf children and engage them in interaction may be true, but shows little difference from hearing mothers of hearing children in this study.

Overall, deaf mothers, regardless of the hearing status of their children, used directions less than hearing mothers, and used behaviors of demonstration, stimulation, expanding and attention seeking more than hearing mothers. Viewed from another perspective, mothers of deaf children, overall, were more negative and asked fewer questions than mothers of hearing children, relative to the total proportion of their behaviors. Schlesinger and Meadow's (1972) finding that mothers of deaf children, being less permissive and more didactic and intrusive than mothers of hearing children, was only partially supported by this study; although all mothers of deaf children were more negative than mothers of hearing children, other controlling behaviors appeared to be more a function of the communicative competence of the dyad as a unit. Many times the group of mothers of deaf children was separated into two groups, by their patterns of behavior, deaf mothers with deaf children and hearing mothers with deaf children. Unfortunately, studies in the past (Goss, 1970; Collins, 1969; Schlesinger and Meadow, 1973; and Greenberg, 1978) comparing mothers of deaf children and mothers of hearing children, did not include communicatively competent dyads of deaf mothers with deaf children, but rather often dealt with a group of dyads having extensive ranges of communication abilities. Hearing mothers of deaf children use sign language much less competently and naturally than do deaf mothers of deaf children. The result is two different groups of dyads producing very different patterns of interaction within the dyad. However, dyads with the same hearing status (eg. D-D, H-H) did not have the same type of interaction patterns, nor were their interaction patterns better in terms of quantity or quality, than dyads with mismatched hearing status (eg. D-H, H-D). Patterns of interaction seem much more influenced by the communication mode used, mother's awareness of the handicap's restrictions and as well the mother's ability and willingness to generate appropriate input and reciprocal interaction with her child. The following section on children's communicative behaviors will help to shed more light on these contentions.

Overall, children used informing more than any other interactive behavior. However, two deaf children of hearing parents used this behavior fewer than half as many times as any other child in the study and were the only two children not to use informing as their major interactive behavior. As well, these deaf children of hearing parents asked very few questions relative to the other children, and relative to their own behaviors. Since both questioning and informing are types of communication that demonstrate initiation, active involvement and control of conversational dialogue, one might expect relatively high incidences of these behaviors in children of dyads with at least some moderate degree of communicative functioning. Greenberg (1978) also found that deaf children in his study, described as high communicators, asked more questions and more often discussed objects and events. These types of behaviors were evident in all children in this study, other than the two deaf children of hearing parents previously discussed. Children who showed the highest rates of questioning behaviors were children from dyads where the mother-to-child communication ratio more closely approached one, indicating that both mother and child were contributing, as equal partners, to the communicative interaction within the dyad. As Greenberg (1978) outlines:

> These abilities greatly expand the realm of the children's social and cognitive worlds by allowing them to discuss both past events and future events. By freeing them from reliance on concrete, present reality it enables the child and mother to engage in conversations dealing with simple abstractions and therefore provides aliment for expanding the child's cognitive development.(p. 91).

It is worthy of note that the two deaf children of hearing mothers, with low questioning and informing behaviors, also had relatively high rates of negatives and responding to directions. One of these children also spent over 25% of his time seeking his mother's attention. In general, these children seem compliant and somewhat emotional, but unable to interact at the same level with their mothers as do many of the other children. Wedell-Monnig and Lumley (1980) in a study of deaf children of hearing mothers who could not sign, had similar results. They found that the children in their study were more passive than hearing children and generally showed signs of what they described as the "learned helplessness" syndrome which occurs when children learn that their actions have no effect on their environment.

Overall, children's behaviors appeared to be affected more by the mother's behaviors than their own hearing status, per se. However, the author realizes this to be somewhat of a cyclic problem, since the effects of the hearing loss will no doubt have some bearing on the interactive style of the mother. In any case, children's behaviors tended to be associated, in kind, to mother's behaviors. That is, negatives were correlated with negatives, positives were correlated with positives, directions with responses and so on.

In summary, the interaction behaviors of both mothers and children have generated the following observations:

(1) Overall, mother-child interaction patterns were very similar to those found in earlier studies of mother-child interaction.

(2) Mothers and children contributed approximately equal amounts to the interactive process, the major deviations from this trend being H-D dyads using total commumication where the mothers accounted for over two-thirds of the communication between them and their children.

(3) The amount and type of interactive behaviors appeared to be affected both by the hearing status of the mother and the hearing status of the child. Mothers of the same hearing status had many similar behavior patterns regardless of the hearing status of their children. The reciprocal effect was also true with children of the same

hearing status having similar behavior patterns regardless of the hearing status of their mothers.

(4) Mothers of hearing children, regardless of their own hearing status, used more questioning behaviors than mothers of deaf children.

(5) Mothers of deaf children, regardless of their own hearing status, used more negative behaviors than mothers of hearing children.

(6) Deaf mothers used fewer directions than hearing mothers and more demonstrating, stimulating, expanding and attention seeking behaviors than hearing mothers, regardless of the hearing status of the children.

(7) Mothers of deaf children were often separated into two distinct groups according to their patterns of behavior (D-D and H-D). These divisions appear highly related to the communicative competence within the dyads. Many of these points are further elaborated and discussed in the following section on behavioral associations and contingencies.

Associated Behaviours

The remainder of this section will deal with associated and contingent behaviors via correlational and lag sequential analyses. Lag one behaviors will often be referred to as responding behaviors for simplicity of reading. In no way does this indicate cause and effect but is used for economy and merely indicates behavior of the other member of the dyad at lag one event level.

Deaf children with hearing mothers showed weak cross-correlations between their own and their mother's behaviors in most areas except directing and responding, and demonstrating and imitating. One hearing child with a hearing mother also showed weak correlations between his own and his mother's behaviors as well. These three children also showed the weakest overall correlations between mother's questioning and child informing, mother's informing and child informing and child questioning and mother's informing. These are behaviors which, by definition, will involve at least a moderate degree of understanding within the dyad, beyond the gestural level, in order to achieve their goals. Whether or not these mothers and children can reciprocally communicate at some moderate level, or whether mothers and/or children are insensitive to the type of communication by the other member of the dyad is not clear at this level of analysis. However, lag analysis indicates that the deaf children of hearing mothers were lowest in responses to mother's questioning and informing. These children often responded to mother's informing behaviors with positives, negatives or attention seeking, unlike most other children who would respond by reciprocal informing or questioning. These children appear to comprehend that mother is directing some attention to them but are often unaware of its intent and therefore do not respond, and/or respond inappropriately.

In any case, as outlined by Osofsky and Connors (1979), a mother has to be sensitive to her child's cues and to respond appropriately, while at the same time, the child has to be able to signal his needs and desires. There is indication that in some of the cases discussed, such as hearing parents with deaf children, mothers and children are interacting, but not necessarily based on the cues of the other, and hence a somewhat interrupted and non-reciprocal flow of interactive events occurs. These contentions are supported by the somewhat one-sided communication trends of H-D dyads as well as the very low effectiveness scores of these mothers. Even when these mothers had high rates of communication, as in dyad four, the effectiveness of this mother in eliciting appropriate responses from her child was very low relative to the rest of the group. However, hearing status and/or communicative competence of the dyad are not the only factors influencing the interactive patterns of mother and child. Dyad eight, a hearing mother and child, have very similar interaction patterns as dyad three, a hearing mother with a deaf child. While child deafness within the dyad will no doubt restrict the ability of a hearing mother to interact with her child, such restricted interaction is not limited to these dyads. Mothers who are active, involved with, and stimulating their children usually have children who reciprocate with active and stimulating interactions. More passive mothers, who generally meet the basic needs of their children but little else, tend to have children who are more passive as well (Martin et al, 1981). Although the communicative competence of the dyad places some obvious restrictions on interaction the question of whether these mothers are active or passive in their interactions will have to be studied further in order to delineate causal effects and more accurately identify intervention strategies.

Deaf mothers and their children showed the highest correlations between mother questioning and child informing, child questioning and mother informing, mother informing and child informing and mother positive and child positive. The 'oral' dyad also had relatively high correlations in the latter two categories, as did one hearing mother with a hearing child in all categories mentioned. In a sample such as this, it is sometimes difficult to identify any type of group influence or trends due to the variation within the group. However, dyads with deaf mothers, regardless of the hearing status of the children, appear to be more interactive overall, have more effect on one another's behaviors, and generate a more active, dually-initiated communication within the dyad. Least interactive dyads were those with hearing mothers, two with deaf children and one with a hearing child. These dyads had the lowest number of children's communication events per session and the same two had the highest rate of no-communication per session.

Lag analysis of these behaviors support the relationships indicated above and further aid in explaining the inter-dyadic differences that seem evident in the correlational analysis. Overall, children's informing behaviors followed mother's negative, questioning, informing, attention seeking and expanding behaviors, more times than any other child behavior, at event lag one. As well, children's positives followed mother's positives, imitations followed demonstrations, responses followed directions and play followed stimulation, more, overall, than any other behaviors at event lag one.

Mother's informing behaviors, overall, followed children's negatives, imitations, questions, informs, and attention seeking more than any other behaviors at event lag one. As well, mother's positives followed children's positives and mother's directions followed children's responses more, overall, than any other behaviors. Most of these results are not consistant over all families as indicated earlier, but rather, tend to be determined by a variety of factors, including hearing status of the dyad as well as type of behaviors generated by each member of the dyad.

Mother's behaviors that generated the highest rates of communicative response from children were directing, demonstrating and questioning. Mother's behaviors generating the lowest rates of communicative response from their children were expanding, attention seeking and stimulation. Hubbell's (1977) observations that parents of language delayed children often rely primarily on questions and commands in attempting to elicit talking from their children appears to be supported in this case, and also seems somewhat warranted, since these behaviors are generating communicative behaviors from the children. However, the lowest communicating children in the study also tended to respond least to these behaviors, while high communicators responded more to these behaviors. Also, while directing and demonstrating by the mother often resulted in non-verbal compliance and/or mimicking by the child, questioning behaviors required a more communicative response. Deaf children of hearing mothers were lowest in responses to mother's questions and tended to respond with more inappropriate behaviors such as negatives and attention seeking, rather than informing or further questions as was the case with the other children in the study.

Overall, mother's directing and child's responding correlated highly across all families. Children's imitations correlated highly with mother's informing in families with deaf mothers, as well as in the 'oral' dyad. These children quite often used imitation to mimic new signs, or in the case of the 'oral' child, new sounds produced by the mother. One would suspect that mother's informing with new signs, or sounds would be an optimal point for children to imitate these new communications, as in the cases discussed above. However, deaf children of hearing mothers, using total communication, had no correlations above .30 between their imitating and their mother's informing. Relationships that are necessary for children to develop communication, that is, receiving, understanding and reproducing communicative cues (McLean and Snyder-McLean, 1978; McDonald, 1981), were not evident at this level, in H-D dyads using total communication.

Overall, children's behaviors followed mother's directing, demonstrating and questioning at relatively high rates. Children's behaviors following mother's informing were relatively low overall, perhaps due to the high frequencies of informing across all mothers, as well as the inability of some children to attend to and/or understand these communications.

Children's behaviors following mother's positive behaviors were moderate in frequency and quite different behaviorally. Children of hearing mothers, regardless of their own hearing status, responded least to their mother's positive behaviors. When they did respond to mother's positives, they more often used informing behavior. Children of deaf mothers responded more to their mother's positives, and more by reciprocating that positive behavior. By the same token, hearing mothers more often followed their children's positives with informing behavior, while deaf mothers more often followed their children's positives with positive behavior. The contention of Martin et al (1981) that behaviors tend to be reciprocated in kind, was substantiated in part, but also appeared strongly related, not only to the criterion behavior per se, but also to the inter-dyadic response to that behavior over time; that is, mothers who informed often after children's positives tended to have children who informed often after mother's positives.

Mother's negative behaviors were followed by children's behaviors relatively infrequently, while children's negatives were followed by mother's behaviors over 65% of the time. Mother's negative behaviors appear to influence children to be negative, while children's negative behavior did not have the same effect on their mothers. This type of responsiveness to negative behavior is discussed later in this chapter under *Maternal Responsiveness and Effectiveness*. However, the contention of Martin et al (1981) that maternal negative behavior influenced children to be negative, while the reciprocal effect was not as strong, was substantiated in this research. Also, reciprocation of positives was stronger in most dyads than reciprocation of negatives. Exceptions to this pattern were three deaf mothers who responded more to their children's negatives than to their positives. Both positive and negative behaviors by children were followed, over 65% of the time, by maternal behaviors, over all families.

Children's behaviors that elicited the highest ratio of communicative response from the mother were questioning and informing, while the lowest maternal responses to children's communications were to children's imitating and responding. This was expected, since questioning and informing would more often mark the beginning of a dialogue within the dyad whereas responding to directions or imitating by the children would more often mark the end of conversation. However, within these behavioral areas, mothers reacted quite differently to their children's communications. Two deaf children of hearing mothers asked one question between them (overall $\overline{x} = 89$), in twenty hours of observation, indicating, as Greenberg (1978) describes, the inability to initiate, engage in, and control conversational dialogue. Both hearing mothers of hearing children responded to their children's questions below the mean level, while the five remaining mothers responded to over 85% of their children's questions. Deaf mothers responded to their children's questioning over 90% of the time and their responses included more demonstrating and expanding behaviors than the other mothers. As a group, deaf mothers seemed much more aware of both their children's questioning and informing behaviors. Hearing mothers responded least to their children's informing with the exception of one hearing mother of a deaf child whose communicative behaviors followed her child's informing 94% of the time. Considering the language barrier between hearing children with deaf parents, one cannot help but note the frequency, appropriateness and reciprocation of responses within these dyads compared to hearing mothers with hearing children who have no communication handicaps, and hearing mothers with deaf children who are often 'communicatively' severely handicapped. Deaf mothers and their children, regardless of the children's hearing status, appear more aware of the communicative restrictions within the dyad. This statement is supported by the high responsiveness and effectiveness scores of these mothers, discussed in the next section, as well as the high rates of interaction, and high ratios of interaction within these dyads.

Reflecting the communication problems of a hearing and deaf person in the same dyad, hearing mothers with deaf children, and deaf mothers with hearing children, all repeated their directions more than other mothers after the child began responding to initial directions. While in some cases this reflected two different sets of directions, in most cases observers noted that directions were repeated due to misunderstandings, the majority of which occurred in hearing mother-deaf child dyads. However, these two groups of mothers were more positive after their child responded than were the other mothers in the study. These mothers appear to realize the problem of communication and, more often, positively reinforced appropriate responding.

In summary, dyads having the least amount and poorest quality (non reciprocal) of interaction were three hearing mothers, two with deaf children using a total communication approach. These mothers seemed to have less effect on their child's communications, especially in areas that generated more active, self-initiated communication by their children. This may be a function of low communicating and/or more controlling mothers generating these low communicating behaviors in children, or perhaps the opposite effect. These low communicating children may be, as Wulbert et al (1975) point out, "...a source of great frustration to their mothers, and...mutual interaction was not pleasurable for either child or mother" (p. 68). Osofsky and Connors (1979) further elaborate that the responsiveness of the infant to stimuli provided by the mother may affect her feelings of attachment and competency, and the frequency of her attempts to elicit responsiveness from the child. In any case, the responsiveness and effectiveness of mothers and children appear not only to be a function of mother's and/or child's hearing status but also of the ability of each member of the dyad to generate appropriate cues and in turn respond to these cues appropriately. It would seem logical, however, to assume that the absence of an appropriate communication system common to both members of the dyad would compound the problem of reciprocity even further. As pointed out by Moore (1977), "mothers of competent children facilitate their children's involvement with objects in the environment, talk with their infants about ongoing activities, and express a playful attitude toward their children" (p. 5). However, recent researchers (Wedell-Monnig and Lumley, 1980) hypothesize that child deafness, without an adequate means of communication, will negatively affect such an interactive process to a point where both children and parents become passive and lethargic in their interactions with the other member of the dyad.

E. Patterns of Maternal Responsiveness and Effectiveness

Deaf mothers, regardless of the hearing status of their children, were more responsive than hearing mothers, as defined by the responsiveness index outlined in Chapter II. Hearing mothers with deaf children were more responsive than hearing mothers with hearing children. Since responsiveness categories were defined quite liberally in most cases, this probably reflects the fact that hearing mothers with hearing children not only responded less to their children's communicative behaviors, but when they did respond, these responses were not as appropriate as those of other mothers in the study. Hearing mothers of hearing children not only had the lowest overall responsiveness scores, but they were also below the mean, overall family level, on all five separate measures of responsiveness. Two hearing mothers with deaf children also scored below the mean responsiveness level for all families, while one hearing mother with a deaf child scored above this level.

If, as Clarke-Stewart (1978) has pointed out, maternal responsiveness to social behaviors is important in promoting a broad range of competencies in children, deaf mothers appeared, at this level, to do better than hearing mothers from both a quantitative and qualitative point of view. Korner (1974) points out that a mother who cannot, or will not, respond to her infant's cues, can severely impede the relationship with her infant. While the number of dyads involved in this study prohibits generalization, one can speculate that dyadic relationships, if only from a recognition and response to cue level, can certainly be improved upon in all homes, but especially those of hearing mothers.

Deaf mothers, as well as one hearing mother of a hearing child, had the highest effectiveness scores of all the mothers studied, as defined by the *Effectiveness Index* outlined in Chapter II. Hearing mothers with deaf children were least effective of all the groups, while two of these mothers, using total communication, had effectiveness scores below 35%, the lowest of all the group. These two mothers were below the mean overall family effectiveness scores on six of the seven measures of effectiveness used. All mothers were generally less effective in eliciting appropriate responses from their children than they were responsive to their children. Hearing mothers with hearing children were exceptions, both being more effective than responsive. One might postulate that, in dyads involving some form of communicative handicap, it is more difficult to adequately transfer communication within the dyad, and to therefore enhance the probability of appropriate responses by the children, the reciprocal of maternal effectiveness. This problem is compounded many times in dyads where a reciprocal, fluent communication system is not available, namely the hearing mothers with deaf children.

Bruner (1975) has suggested that, at the early stages of acquisition, the natural language teacher is:

> ...an interpreting adult who operates not so much as a corrector or reinforcer but rather is a provider and idealizer of utterances while interacting with the child. (p 17).

McLean and Snyder-Mclean (1978) would add that the adult not only provides input, but that it be "appropriate sensory input" and that there would also be a large amount of reciprocal interaction. If one adheres to these contentions, it would appear that hearing parents of deaf children, both in this study and in past research (Goss, 1970; Collins, 1969; Greenberg, 1978), have a difficult time in providing the necessary environment for optimal interaction between themselves and their children. It seems safe to assume that such an optimal interaction environment can only be enhanced if both members of the dyad understand and use the same mode of communication from birth. However, this does not assume a common language to be the only affecting factor, as can be observed in the variability of the interactive patterns of hearing parents and hearing children.

McLean and Snyder-McLean (1978) posit that children not only need "appropriate input", but also need large amounts of "reciprocal interaction" with a caregiver who is aware of his or her cues for communication. While this study has looked at only a small sample of children, these contentions for the need for "appropriate input" and "reciprocal interaction" have been supported across all families, regardless of the communicative problems within each dyad. The question of causality, that is, if mothers who provide "appropriate input" and "positive reciprocal interaction" generate more communicative and responsive children or if, in fact, the opposite is true, cannot be answered by studies such as this. Osofsky (1979) presents a more complete overview of this question of causality and the effects of each member of the dyad on the other. However, this research does support earlier studies (Corson, 1973; Greenberg, 1978) which indicated that dyads with deaf children are not only dependant on their communicative approach (i.e. total versus oral) for interaction, but also are affected by the communicative competence within the dyad, as well as the interactive efforts of each member of the dyad. This study maintains that oral and total communication approaches are appropriate for certain deaf children, depending on many factors, including the degree of hearing loss. However, while it is extremely important to provide the deaf child with an appropriate mode of communication at the earliest possible age, this alone will not ensure appropriate interaction levels within the dyad. Questions of maternal acceptance of the handicap, as well as mother's ability to recognize her child's communicative cues and to provide plenty of reciprocal interaction events for practicing these communications, have to be addressed before deaf children, especially of hearing parents, can be provided a more natural communicative and interactive setting in which to develop.

As well, while it was not a function of this research to assess preschool programs, the need to evaluate programs dealing with hearing mothers and deaf children is evident in light of recent research in this and related areas (Mclean and Snyder-Mclean, 1978; Abidin, 1980; Osofsky, 1979; Bronfenbrenner, 1974; Heifetz, 1980). Considering the traumatic effects on a hearing family of having a deaf child, combined with the subsequent lack of understanding of the handicap, as well as the communicative disabilities of both mother and child, the need for parent support services has to be of primary concern (Bronfenbrenner, 1976; Connor, 1976; Carew, 1980; Abidin, 1980). The extent to which the present support services and intervention programs for preschool hearing handicapped children are successfull is not certain. However, the need to furthur monitor families affected by deafness, as well as the ongoing effects of existing support services on these families, seems evident.

In summary, based on the observations made, the conclusions of the present study are as follows:

(1) The deaf mothers in this study appeared more aware of the restrictions on their communication than hearing mothers with deaf children. This is supported by the high rates of interaction that were generated by these mothers as well as the high degree of responsiveness and effectiveness with their children. This "awareness" would be more natural in a deaf mother having grown up with such a handicap but

should be considered further when developing future research and intervention with H-D dyads.

(2) Hearing mother-deaf child dyads appear to be the most seriously disadvantaged group in the present research and in past studies dealing with hearing impaired preschoolers. The presence of a viable communication system to teach and communicate with their children seems a logical prerequisite before an optimal learning environment can be considered.

(3) Dyadic interaction can be greatly affected by a hearing impairment. This may be positive or negative depending on a number of factors previously mentioned including communication mode, parental acceptance of the handicap, parental awareness of the handicap's restrictions and parental ability or willingness to generate appropriate input and reciprocal interaction. However, dyadic interaction in communicatively competent dyads can stronly resemble the poor quality of interaction found in communicatively weak dyads when mothers take a more custodial role in child-rearing and generate little interaction between themselves and their children.

(4) Child development research in related areas such as language development and mother-child interaction, appears highly relevant to the preschool deaf child and warrants serious consideration when considering priority areas for research and intervention with the preshcool deaf population. While literature on the deaf preschooler and his

family is limited, related research with language delayed children, hearing children and other handicapped children is readily available and able to be logically adapted to the deaf preschooler. This contention was not only supported by this study but by virtually all major studies dealing with a preschool deaf population.

(5) Mother-child interactions appear very personalized and highly dependant on mother's awareness of, and ability to meet, her child's needs. While studies of large groups of mother-child dyads will provide patterns of interaction common to certain groups, the real patterns of interaction within dyads seems highly diversified. Although there is much to be learned by the study of large groups, these studies are often carried out under more clinical, experimental and less time-consuming conditions. The greatest expense of the latter type of research is its generalizability to the natural home environment as well as its immediate value in designing intervention strategies for specific families. If intervention is to focus on the parents, usually the mother, as suggested by researchers in related fields, it seems apparent that an on-going analysis of the interactions between parents and their children is necessary in order to monitor, evaluate and if necessary change such patterns of interaction.

(6) Mother-child interactions with preschool deaf children have to be a major focus of attention for intervention programs dealing with this population. While

hearing children will develop language and social skills via other sources such as media, family and friends, the mother of a deaf child is usually the only communicative source for such a child for the "optimal" learning years of this child's life.

(7) Intervention programs for preschool deaf children should have a built-in monitoring system that will provide an up-to-date theoretical base on which program goals are developed, as well as an evaluative component to determine if, in fact, these goals are met.

V. Summary and Implications

Mother-child relations discovered in the present research closely parallel those found in related research with similar children from similar backgrounds. However, as with most research, there are a number of factors involved in this study which limit the certainty with which conclusions can be drawn. Small sample size and differences in hearing status of both parents and children are important factors limiting the extent to which one can generalize these results. While this is a restriction, it is also a strength of this type of 'exploratory' research. This type of research is generated by hypotheses from related areas such as mother-child interaction, child development and language development, which theoretically should apply to the preschool deaf child. Intensive, longitudinal observation of a cross-section of these and other children was needed to identify which principles of interaction apply to these children and, more importantly, to identify anamolous areas for further research. The main focus of the present research was to identify areas of mother-child interaction that may be related to mother's and child's hearing status, as well as to mother's attitudes and acceptance of deafness.

McLean and Snyder-McLean (1978) have suggested that dyads need "reciprocal interaction" and "appropriate input" before communication can become natural and free-flowing. Meadow and Trybus (1979) propose that the prevalence and the nature of emotional/behavioral disturbances in deaf children suggests that the impact of deafness on the home environment is significant and creates patterns of parental behaviors detrimental to the child's development, thus inhibiting the appropriate input and reciprocation behaviors that are needed. Until recently, the superiority of deaf children of deaf parents in academic achievement, social development and language abilities was often attributed to the parents' use of sign language alone. Corson's (1973) work disagrees with this theory and attributes much of this 'superiority' of deaf children of deaf parents to the parental acceptance of the handicap. Bodner-Johnson (1981) goes on to suggest that parental acceptance, as well as parental ability to communicate fluently and readily from birth with their child, to a large extent explains the superiority of deaf children with deaf mothers over deaf children with hearing mothers.

These contentions were partially supported by this study, since deaf mothers were more responsive to their children than hearing mothers, were more effective in eliciting responses from their children than hearing mothers and overall had a better quality of interaction with their children than hearing mothers. However, this was also true of deaf mothers with hearing children, introducing another possible dimension to the superiority of deaf children with deaf mothers over deaf children with hearing mothers. These mothers are not only more accepting of the handicap than hearing mothers, but also appear more aware of the restrictions and limitations of hearing impairment and therefore make extra efforts to overcome these limitations. This awareness of the restrictiveness of hearing impairment, not only vocationally, but, as importantly, socially and emotionally, was evident in deaf mothers who had quite low scores on their attitudes about deafness, reflecting a poor self-image in relation to hearing people. Apart from the self-concept aspect, these mothers may well be reflecting attitudes generated from years of prejudicial treatment by a hearing community. In any case, deaf mothers, while their attitudes about deafness were poor, had a higher acceptance of deafness than hearing parents with deaf children, who tended to give more socially appropriate, middle-of-the-road answers to these questions. The question of parental acceptance of deafness, as it relates to appropriate input from birth, and reciprocal interaction, was more clearly distinguishable between deaf mother and child dyads and hearing mother-deaf child dyads using total communication. The one mother using oral communication with her deaf child was more responsive to, and effective with, her child than hearing mothers using total communication and had a more reciprocal communication with her child than these mothers. While the oral dyad had a poorer quality of interaction than the deaf dyads, they did have more and better interactions than hearing mothers with deaf children using total communication, and more closely resembled hearing mother-hearing child dyads in their interactive approach. While the oral mother was less accepting of deafness than other mothers, she did appear to meet the appropriate input and reciprocal interaction needs of her child quite adequately. At this point it is not clear as to what degree maternal acceptance of deafness, "appropriate input" from birth, and reciprocal interactions affect the development of young deaf children. Past and present research indicate these variables to be extremely important and the need for further research on these topics is evident. As Bodner-Johnson (1981) points out:

> ...family environment research...fills a void regarding how we might conceptualize the effects of the handicapping condition on the cognitive and affective behaviors of the deaf child. (p. 4).

Such research is desperately needed with all classes of dyads affected by deafness, including not only deaf children with deaf and hearing parents using various modes of communication but with hearing children with deaf parents as well. The question of parental awareness and understanding of the handicap and its relationship to parent-child interactions needs to be studied further in terms of all dyads. Adequate intervention strategies can only develop from a comprehensive knowledge of all of these factors affecting the deaf child's development.

Finally, Bronfenbrenner (1974) suggests that the most effective early childhood education programs are those which help the parents to provide support and encouragement to their children. In effect, mothers should often implement these programs with the help and guidance of a professional who directs his expertise to the parents and not necessarily to the child.

As Heifetz (1980) points out, parents of handicapped children are often put in a role that they never expected, probably did not want, and for which they were not psychologically prepared. Seligman (1975) posits that such a role, especially when accentuated with professionals offering service based on outdated theories, can often lead to a psychological state of learned helplessness. The stress and frustrations of dealing with the handicapped child , combined with the frustrations of finding 'effective' professional services, may reduce parenting to little more than day-to-day custodial care. Current comphrensive reviews of language development research (eg. McLean and Snyder-McLean, 1978), mother-child interaction research (eg. Osofsky, 1979) and parent as teacher research (eg. Abidin, 1980) all point to the need to support parents in an active intervention role with their children. However, in the education of young deaf children, as with many other handicapped children, the role of parents has too often been a passive one, supplemented by lack of professional support and effective intervention strategies.

Heifetz (1980) points out that:

> Parents potential for active, effective partnership in service delivery, which has been so extensively documented in the behavioral training literature, is denied, particularly by paradigms that routinely assume the existence of psychopathology in the parents.(p. 373).

While it is not clear as to exactly why many educators rarely take full advantage of parents in their early education programs the need for continuous monitoring and upgrading of these programs seems apparent.

In deaf education, as in many other areas of education, the knowledge gained from related fields of study tends to have a somewhat lingering percolation phase before it reaches the people who design programs and intervention strategies. While many programs for deaf children have benefitted from related research, the diversity in philosophies of intervention for preschool deaf children, and the resultant programs, indicates a real need for further evaluation of existing programs, and their relevance to our present knowledge of child development.

Bibliography

Abidin, R.R. (Ed.) Parent education and intervention handbook. Springfield, Illinois: Charles C. Thomas, 1980.

Adler, S. Social class bases of language: A reexamination of socioeconomic, sociopsychological and sociolinguistic factors. American Speech and Hearing Association, 1973, 15, 3-9.

Ainsworth, M. The effect of maternal deprivation: A review of findings and controversy in the context of research strategy. In Deprivation of maternal care. A reassment of its effects. World Health Organization. Geneva, 1962.

Ainsworth, M. The development of mother-infant interaction among the Ganda. In B.M. Fosse (Ed.), Determinants of infant behavior. Vol.II. New York: Wiley, 1963.

Ainsworth, M., and Bell, S. Some contemporary patterns of mother-infant interaction in the feeding situation. In J.A. Ambrose (Ed.), Stimulation in early infancy. London: Academic Press, 1969, 133-170.

Ainsworth, M., Bell, S., and Stayton, D. Individual differences in strange situation behavior of one year olds. In H.R. Schaffer (Ed.), The origins of human social relations. London: Academic Press, 1971.

Allen, J.C., and Allen, M.L. Discovering and accepting hearing impairment: Initial reactions of parents. Volta Review, 1979, 81, 279-285.

Altman, E.D. Some factors in mother-child interaction related to language competence in children with severe congenital deafness. Paper presented at Eastern Psychological Association, 1973, Washington, D.C.

Altmann, S.A. Sociobiology of rhesus monkeys. II: Stochastics of social communication. Journal of Theoretical Biology, 1965, 8, 490-522.

Anastasi, A. Psychological Testing, (4th Ed.). New York: McMillan, 1976.

Babbige, R. Education of the deaf in the United States. The Report of the Advisory Committee on Education of the Deaf. Washington, D.C. U.S. Government Printing Office, 1965.

Bakwin, H. Lonliness in infants. American Journal of Diseases in Children, 1942, 63, 30-40.

Bell, R.Q. Stimulus control of parent or caretaker behavior by offspring. Developmental Psychology, 1971, 4, 63-72.

Bell, S. The effectiveness of various maternal responses as terminators of crying. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April, 1971.

Best, B. Development of classification skills in deaf children with and without early manual communication. Unpublished doctoral dissertation. University of California, Berkeley, 1972.

Best, B. and Roberts, G. Early cognitive development in hearing impaired children. American Annals of the Deaf, 1976, 121, 560-64.

Bibring, G.S. A study of the psychological processes in pregnancy and of the earliest mother-child relationship. Psychoanalytic Study of the Child, 1961, 16, 9-72.

Bing, E. Effect of child-rearing practices on development of differential cognitive abilities. Child Development, 1963, 34, 631-648.

Birch, J.R., and Birch, J.W. Predicting school achievement in young deaf children. American Annals of the Deaf, 1956, 101, 348-352.

Birch, J.R., Stuckless, E.R., and Birch, J.W. An eleven year study of predicting school achievement in young deaf children. American Annals of the Deaf, 1963, 108, 236-240.

Bloom, B. Stability and change in human characteristics. New York: Wiley, 1964.

Bloom, K., and McDowell, E.E. Time-sampling caretaker and infant behaviors during the first five weeks of life. Journal of Psychology, 1972, 80, 111-120.

Bloom, L. Language development - form and function in emerging grammars. Cambridge: MIT Press, 1970.

Bodner-Johnson, B. Families and their learning environments for deaf children: A theoretical position. Paper presented at the annual meeting of the American Research Association, Los Angeles, 1981.

Bower, T.G.R. Human Development. San Francisco: W.H. Freeman and Co., 1979.

Bowerman, M.F. Learning to talk: A cross-linguistic comparison of early syntactic development with special reference to Finnish . London and New York: Cambridge University Press, 1973.

Brazelton, T.B., Young, G.G., and Bullowa, M. Inception and resolution of early developmental pathology: A case history. Journal of the American Academy of Child Psychiatry, 1971, 10, 124-135.

Brodbeck, A.J., and Irwin, D.C. The speech behavior of infants without families. Child Development, 1946, 17, 145-156.

Broen, PA. The verbal environment of the language-learneng child. ASHA Monographs, 1972, 17.

Bronfenbrenner, U. Is early intervention effective? In H.L. Leichter (Ed.), The family as educator. New York: Teacher's College Press, 1974.

Bronfenbrenner, U. Research on the effects of day care and child development. In Toward a national policy for children and families. Washington, D.C. National Academy of Sciences, Advisory Committee on Child Development, 1976.

Bronfenbrenner, U. Toward an experimental psychology of human development. American Psychologist, 1977, 32, 513-531.

Bronson, W.C. Competence and the growth of personality. In K.J. Connolly and J.S. Bruner (Eds.), The growth of competence. New York: Academic Press, 1974.

Brown, D.W. Parental attitudes and counselling as revealed through a parental information and attitude scale. Paper presented at the Workshop on Community Integration of the Hearing Impaired, St. Paul Minnesota, September, 1969.

Bruner, J.S. The ontogenesis of speech acts. Journal of Child Language, 1975, 2, 1-19.

Caldwell, B.M. Social class level and stimulation: Potential of the home. Exceptional Infant, 1967, 1, 455-466.

Caldwell, B.M. and Bradley, R.H. Home observation for measurement of the environment. University of Arkansas, Little Rock, Arkansas, 1979.

Carew, J.V. Experience and the development of intelligence in young children at home and in day care. Monographs of the Society for Research in Child Development, 1980, 45, (6-7, Serial No. 187).

Casler, L. Maternal deprivation: A critical review of the literature. Monographs of the Society for Research in Child Development, 1961, 26, 1-64.

Casler, L. The effect of extra tactile stimulation on a group of institutionalized infants. Genetic Psychology Monographs, 1965, 71, 137-175.

Chomsky, N. Syntactic structures. The Hague: Mouton, 1957.

Chomsky, N. Aspects of the theory of syntax. Cambridge: MIT Press, 1965.

Clarke-Stewart, K.A. Interactions between mothers and their young children. Monographs of the Society for Research in Child Development, 1973, 38, 607(6-7, Serial No. 153).

Clarke-Stewart, K.A. Child care in the family: A review of researchand some propositions for policy. New York: Academic Press, 1977.

Clarke-Stewart, K.A., and Hevey, L.M. Longitudinal relations in repeated observations of mother-child interaction from 1 to 2 1/2 years. Developmental Psychology, 1981, 17, 127-145.

Collins, J.L. Communication between deaf children of preschool age and their mothers. (Doctoral dissertation, University of Pittsburg, 1969). Dissertation Abstracts International, 30, 2245A. (University Microfilms No. 69-19660).

Connor, L.E. New directions in infant programs for the deaf. Volta Review, 1976, 78, 8-15.

Corson, H.J. Comparing deaf children of oral deaf parents and deaf parents using manual communication with deaf children of hearing parents on academic, social and communicative functioning. Unpublished doctoral dissertation. University of Cincinnati, 1973.

Craig, W.N. Effects of pre-school training on the development of reading and lip-reading skills of deaf children. American Annals of the Deaf, 1964, 109, 280-296.

Craig, W. (Ed.) Directory of services for the deaf. American Annals of the Deaf, 1972, 117.

Cravioto, J., and Delicardie, E. Environmental correlates of severe clinical malnutrition and language development in survivors from kwashiortor and marasmus. In Nutrition: The nervous system and behavior. Scientific Publication No. 251. Washington, D.C.: Pan-American Health Organization, 1972.

Doctor, P. (Ed.) Directory of services for the deaf. American Annals of the Deaf, 1972, 117, (May).

Elardo, R., Bradley, R., and Caldwell, B. The relation of infants home environment to mental test performance from six to thirty-six months: A longitudinal analysis. Child Development, 1975, 46, 71-76.

Elardo, R., Bradley, R., and Caldwell, B.M. A longitudinal study of the relation of infant's home environments to language development at age three. Child Development, 1977, 48, 595-603.

Escalona, S.K. Patterns of infantile experience of the development process. The Psychoanalytic Study of the Child, 1963, 18, 197-244.

Frick, T. and Semmel, M.I. Observer agreement and reliabilities of classroom observational measures. Review of Educational Research, 1978, 48, 157-184.

Friedlander, B.Z., Jacobs, A.C., Davis, B.B., and Whetstone, H.S. Time sampling analysis of infants natural language environments in the home. Child Development, 1972, 43, 730-740.

Furth, H.G. Thinking without language. New York: Free Press, 1966.

Gerwitz, J.L.,and Boyd, E. Mother-infant interaction and its study. In H.W. Reese (Ed.), Advances in child development and behavior, Vol. II. New York: Academic Press, 1976.

Gerwitz, H.B., and Gerwitz, J.L. Caretaking settings, background events and behavioral differences in four Israeli child-rearing environments: Some preliminary trends.In B.M. Foss (Ed.), Determinants of infant behavior. IV. London: Methuen, 1969, 229-295.

Goldberg, S, and Lewis, M. Play behavior in the year-old infant: Early sex differences. Child Development, 1969, 40, 21-31.

Goldfarb, W. Effects of psychological deprivation in infancy and subsequent stimulation. American Journal of Psychiatry, 1945, 102, 18-33.

Goss, R.N. Language used by mothers of deaf children and mothers of hearing children. American Annals of the Deaf, 1970, 115, 93-96.

Greenberg, M.T. Attachment behavior, communicative competence, and parental attitudes in preschool deaf children. (Doctoral dissertation, University of Virginia, 1978), Dissertation Abstracts International , 1979, 39, 4008-B (University Microfilms No.7903530).

Greenberg, M.T. Mode use in deaf children: The effects of communication method and communication competence. Applied Psycholinguistics, 1980, 11, 65-79.

Greenfield, P., and Smith, J. The structure of communication in early language development. New York: Academic Press, 1976.

Gregory, S. The deaf child and his family. New York: John Wiley, 1976.

Haka-Inse, K. Child development as an index of maternal mental illness. Pediatrics, 1975, 55, 310-312.

Harper, L. V. The young as a source of stimuli controlling caretaker behavior. Developmental Psychology, 1971, 4, 73-88.

Heifetz, L.J. From consumer to middleman: Emerging roles for parents in the network of services for retarded children. In R.R. Abidin (Ed.), Parent education and intervention handbook. Springfield, Illinois: Charles C. Thomas, 1980.

Hubbell, R.D. On facilitating spontaneous talking in young children. Journal of Speech and Hearing Disorders, 1977, 42, 216-231.

Jones, P. Home environment and the development of verbal ability. Child Development, 1972, 43, 1081-1086.

Kempe, H. Paper presented at the Perinatal Medicine Meeting, Snowmass , Colorado, 1976.

Korner, A.F. The effect of the infant's state, level of arousal, sex and ontogenetic stage on the caregiver. In M. Lewis and L.A. Rosenblum (Eds.), The effect of the infant on its caregiver. New York: Wiley, 1974, 105-121.

Kysela, G.M. The early education project.(Tech. Rep. Ao8o7). Edmonton, Alberta: University of Alberta, Centre for the Study of Mental Retardation, Summer, 1978.

Lakin, M. Personality factors in mothers of excessively crying (colicky) infants. Monographs of the Society for Research in Child Development, 1957, 22, (1, Serial No. 64).

Lamb, M.E. Interactions between two-year olds and their mothers and fathers. Psychological Reports, 1976, 38, 347-350.

Lasso, C. National survey of materials and procedures used to teach reading to hearing impaired children. American Annals of the Deaf, 1978, 123, 22-30.

Leiter, R.G., General instructions for the Leiter International Performance Scale. Chicago: Stoelting, 1969.

Levine, E.S. The psychology of deafness. New York: Columbia University Press, 1960.

Lewis, M., and Goldberg, S. Perceptual-cognitive development in infancy : A generalized expectancy model as a function of the mother-infant relationship. Merrill-Palmer Quarterly, 1969, 15, 81-100.

MacDonald, J.D. Language through conversation. A communication model for language intervention. Three targets: Child-conversation- significant others. Nisonger Centre, Ohio State University, Ohio, 1981.

Martin, J.A., Maccoby, E.E., Baran, K.W., and Jacklin, C.N. Sequential analysis of mother-child interaction at 18 months: A comparison of microanalytic methods. Developmental Psychology, 1981, 17, 146-157.

McDowell, E.H. Comparison of time-sampling and continuous recording techniques for observing developmental changes in caretakers and infant behaviors. Journal of Genetic Psychology, 1973, 23, 99-105.

McLean, J.E. and Snyder-McLean, L.K. A transactional approach to early language training. New York: Charles E. Merrill Publishing Co., 1978.

Meadow, K.P. The effect of early manual communication and family climate on the deaf child's development. Unpublished doctoral dissertation. University of California, Berkeley, 1967.

Meadow, K.P. Early manual communication in relation to the deaf child's intellectual, social and communicative functioning. American Annals of the Deaf, 1968, 113, 29-41.

Meadow, K.P. The development of deaf children. In E.M. Hetherington (Ed.), Review of Child Development Research. (Vol.5) Chicago: University of Chicago Press, 1975.

Meadow, K. and Trybus, R. Behavioral and emotional problems of deaf children: An overview. In L. Bradford and W. Hardy (Eds.), Hearing and hearing impairment. New York: Grune and Stratton, 1979.

Mindel, E.D., and Vernon, M. They grow in silence. National Association of the Deaf. Maryland, 1971.

Mira, M.P. The use of the Arthur Adaptation of the Leiter International Performance Scale and the Nebraska Test of Learning Aptitude with preschool deaf children. American Annals of the Deaf. 1962, 107, 224-228.

Montgomery, G.W. The relationship of oral skills to manual communication in profoundly deaf adolescents. American Annals of the Deaf, 1966, 111, 557-565.

Moore, S. G. Mother-child interactions and competence in infants and toddlers: A research report. Young Children, 1977, 32, 64-68.

Moores, D. Evaluation of preschool programs: An interaction analysis model. University of Minnesota Research and Development Center. Occasional paper #1, July, 1970.

Moores, D.F., Weiss, K.L., and Goodwin, M.W. Early education programs for hearing impaired children: Major findings. American Annals of the Deaf, 1978, 123, 925-936.

Moss, H.A. Methodological issues in studying mother-infant interaction. American Journal of Orthopsychiatry, 1965, 35, 482-486.

Moss, H.A. Sex, age, and state as determinants of mother-infant interaction. Merrill-Palmer Quarterly, 1967, 13, 19-36.

Moss, H.A., and Robson, K.S. Maternal influences in early social visual behavior. Child Development, 1968, 39, 401-408.

Moss, H.A., Robson, K.S., and Pedersen, F. Determinants of maternal stimulation of infants and consequences of treatment for later reactions to strangers. Developmental Psychology, 1969, 1, 239-246.

Myklebust, H.R. The Psychological effects of deafness. American Annals of the Deaf, 1960, 105, 372-386.

Myklebust, H.R. The psychology of deafness. New York and London: Grune and Stratton, 1964.

Norden, K. The structure of abilities in a group of deaf adolescents. Paper presented to the International Congress on Education of the Deaf. Stockholm, August, 1970.

Northcott, W. Competencies needed by teachers of hearing impaired infants, birth to three years, and their families. Volta Review, 1973, 75, 532-544.

Osgood, C.E. Method & theory in experimental psychology. New York: Oxford University Press, 1953.

Osofsky, J. (Ed.). Handbook of infant development. New York: Wiley, 1979.

Osofsky, J.D., and Connors, K. Mother infant interaction: An integrative view of a complex system. In J.D. Osofsky (Ed.), Handbook of infant development. New York: Wiley, 1979.

Osofsky J.D., and Danzger, B. Relationships between neonatal characteristics and mother-infant characteristics. Developmental Psychology, 1974, 7, 157-168.

Parke, R.D. Parent-infant interaction: Progress, paradigms and problems. In G.P. Sackett and H.C. Haywood (Eds.), Application of observationalethological methods to the study of mental retardation. Baltimore: University Park Press, 1978.

Phillips, W.D. Influence of preschool training on achievement in language arts, arithmetic concepts and socialization of young deaf children. Unpublished doctoral dissertation. Columbia University, 1963.

Plowden, B. Children and their primary schools. London: Her Majesty's Stationery Office, 1967.

Quigley, S.P. The influence of fingerspelling on the development of language, communication and educational achievements in deaf children. Urbana: University of Illinois, 1969.

Quigley, S.P. and Frisina, D.R. Institutionalization and psychoeducational development of deaf children. Washington: Council for Exceptional Children, 1961.

Ratcliffe, K.J., and Ratcliffe, M.W. The Leiter scales: A review of validity findings. American Annals of the Deaf, 1979, 124, 38-44.

Rheingold, H.L. The measurement of maternal care. Child Development, 1960, 31, 565-575.

Ritter, D.R. Intellectual estimates of hearing impaired children: A comparison of 3 measures. Psychology in the

Schools, 1976, 13, 397-399

Robinson, M.J. Sink or swim: The single-parent family with a deaf child. Volta Review, 1979, 81, 370-377.

Rodda, M., Godsave, B., and Stevens, J. Some aspects of the development of young hearing impaired children. American Annals of the Deaf, 1974, 119, 729-735.

Rosenthal, M.K. The study of infant-environment interaction: Some comments on trends and methodologies. Journal of Child Psychology and Psychiatry, 1973, 14, 301-317.

Sackett, G.P. (Ed.) Observing behavior (Vol.2.): Data collection & analysis methods. Maryland: University Park Press, 1978.

Sackett, G. P. The lag sequential analysis of contingency and cyclicity in behavioral interaction research. In J.D. Osofsky (Ed.), Handbook of infant development. New York: Wiley, 1979.

Sackett, G.P., Halm, R., Crowley, C. and Henkins, A. Computer technology: A fortran program for lag sequential analysis of contingency and cyclicity in behavioral interaction data. Behavior Research Methods and Instrumentation, 1979, 11, 366-378.

Saltz, R. Aging persons and institutionalized young persons: Mutual effects of a "foster-grandparent project". Unpublished manuscript, Merrill-Palmer Institute, 1969. (Cited by R.H. Starr. Cognitive development in infancy: Assessment, acceleration, and actualization). Merrill-Palmer Quarterly, 1971, 17, 152-186.

Sander, L.W. Adaptive relationships in early mother-child interaction. Journal of American Academy of Child Psychiatry, 1964, 3, 231-264.

Sander, L. The longitudinal course of early mother-child interaction - cross-case comparison in a sample of mother-child pairs. In B. Foss (Ed.), Determinants of infant behavior. London: Tavistock, 1969.

Schaefer, E.S., Furfey, P.H., and Harte, T.J. Infant education research projects, Washington, D.C. In *Preschool program in compensatory education*. No.1. Washington, D.C.: Government Printing office, 1968.

Schaffer, H.R. and Emerson, P.E. Patterns of response to physical contact in early human development. *Journal of Child Psychology and Psychiatry*, 1964, *5*, 1-13.

Schein, J.D. and Delk, M.T. *The deaf population of the United States*. Silver Springs, Maryland: National Association of the Deaf, 1974.

Schlesinger, H.S., and Meadow, K.P. *Sound and sign: Childhood deafness and mental health*. Berkeley: University of California Press, 1972.

Schlesinger, H.S., and Meadow, K.P. Studies of family interaction, language acquisition, and deafness. Grant report to Office of Maternal and Child Health, HEW, 1976.

Schlesinger, I.M. Relational concepts underlying language. In R.L. Schiefelbusch and L.L. Lloyd (Eds.), *Language perspectives: Acquisition, retardation and intervention*. Baltimore, Md.: University Park Press, 1974.

Schroedel, J.G. and Schiff, W. Attitudes towards deafness among deaf and hearing populations. *Rehabililation Psychology*, 1972, *19*, 59-70.

Seligman, M.E.P. *Helplessness*. San Francisco: Freeman, 1975.

Skinner, B.F. *Verbal behavior*. New York: Appleton-Century-Crofts, 1957.

Spitz, R.A. Hospitalism. *Psychoanalytic Study of the Child*, 1946, *2*, 113-117.

Spitz, R.A., and Wolf, K.M. Anaclitic depression. *Psychoanalytic Study of the Child*, 1946, *2*, 313-347.

Stern, G.G., Caldwell, B.M., Hersher, L., Lipton, E.L. and

Richmond, J.B. A factor analytic study of the mother-infant dyad. Child Development, 1969, 40, 163-181.

Stinson, M.S. Maternal reinforcement and help and the achievement motive in hearing and hearing-impaired children. Developmental Psychology, 1974, 10, 348-353.

Stuckless, E.R. Technology and the visual processing of verbal information by deaf people. American Annals of the Deaf, 1978, 123, 630-636.

Stuckless, E.R., and Birch, J.W. The influence of early manual communication on the linguistic development of deaf children. American Annals of the Deaf, 1966, 3, 452-462.

Suchman, J. Observation and analysis in child development . New York: Harcourt, Brace and World, Inc., 1959.

Taddonis, R.O. Correlation of the Leiter and visual subtests of the Illinois Test of Psycholinguistic Abilities with deaf elementary school children. Journal of School Psychology, 1973, 11, 30-35.

Vane, J.R. Problems in, and strategies for, evaluating preschool programs. Journal of School Psychology, 1976, 14, 39-46.

Vernon, M. and Koh, S.D. Early manual communication and deaf children's achievements. American Annals of the Deaf, 1970, 115, 527-536.

Vernon, M. and Koh, S.D. Effects of oral pre-school compared to manual communication on education and communication in deaf children. American Annals of the Deaf, 1971, 116, 569-574.

Vygotsky, L.S. Thought and language. Cambridge, Mass. M.I.T. Press, 1962.

Wachs, T., Uzgiris, I., and Hunt, J. Cognitive development in infants of different age levels and from different environmental backgrounds: An exploratory investigation.

Merrill-Palmer Quarterly, 1971, 17, 283-317.

Walberg, H., and Marjoribanks, K. Differential mental abilities and home environment: A canonical analysis. Developmental Psychology, 1973, 9, 363-368.

Wedell-Monnig, J., and Lumley, J.M. Child deafness and mother-child interaction. Child Development, 1980, 51, 766-774.

Wedell-Monnig, J., and Westerman, T.B. Mother's language to deaf and hearing infants. Paper presented at the Annual Boston University Conference on Language Development, Boston, Mass., Sept. 30-Oct.1, 1977.

White, A.H., Jr. and Stevenson, V.M. The effects of total communication, manual communication, oral communication and reading on the learning of factual information in residential school deaf children. American Annals of the Deaf , 1975, 120, 48-57.

Whitehurst, G.T., Novak, G., and Zorn, G.A. Delayed speech studied in the home. Developmental Psychology, 1972, 7, 169-177.

Wulbert, M., Inglis, S., Kriegsmann, E., and Mills, B. Language delay and associated mother-child interactions. Developmental Psychology, 1975, 2, 61-70.

Wyatt, G. Language learning and communication disorders in children. New York: Free Press, 1969.

Yarrow,L. Maternal deprivation: Toward an empirical and conceptual re-evaluation. Psychological Bulletin, 1961, 58, 459-490.

Yarrow, L. Research and dimensions for early maternal care. Merrill-Palmer Quarterly, 1963, 9, 100-114.

Yarrow, L.J., Rubenstein, J.L., and Pedersen, F.A. Dimensions of early stimulation: Differential effects on infant development. Symposium presented at the biennial meeting of the Society for Research in Child Development, Minneapolis, April, 1971.

Yuker, H.E., Block, J.R. and Younng, J.H. *The measurement of attitudes toward disabled persons*. Albertson, New York: Human Resources, 1970.

APPENDIX A

DEMOGRAPHIC QUESTIONNAIRE

Appendix A

DEMOGRAPHIC QUESTIONNAIRE

RESEARCH PROJECT
HEARING IMPAIRMENT

I. FAMILY DATA:

1. Name of child_________________________Sex________
2. Child's birthday: Month_______________ Day_____Year
3. Name and address of parents or guardians:

   Relationship____________________________________

   Name____

   Mailing address:___________________________________

   __________________________City__________Postal Code____
4. Home telephone________________________________
5. Father's occupation:________________________________

   Mother's occupation:________________________________
6. Are the parents separated or divorced?

   yes_______no_______
7. Is the child adopted, or a foster child?________
8. What language is spoken in the home?________
9. List the names and ages of otherchildren in the

family (use another sheet of paper if necessary)

____

____

10. Other persons living in the home?

Name________________Relationship______________

____

____

11. Are the child's parents deaf? Father: yes ____no____

Mother: yes____no____

If so give cause_________________________________

____

12. In the families of the parents, are there any deaf or hard of hearing relatives?

Father's family:_____no_____

List cause______________________________________

____

Mother's Family: yes____no____

List cause______________________________________

____

13. Has the child been examined by an otologist (ear doctor)? yes____no____.

If yes, give doctor's name______________________

14. Was the child born with a hearing loss? yes____no____

At what age was the hearing loss first noticed? ____

15. Do you know the cause of the child's hearing loss?

yes____no____. If yes, describe_____________

____

16. Has the child had a hearing test? yes_____ no_____

17. When was the child's hearing first tested?__________

Where____

How old was the child?_______What were the results?

____

18. Was a hearing aid recommended? yes_____ no_____

If yes, what kind is it?___________________________

When did the child begin using it?_________________

Have there been any problems with the hearing aid?

yes_____no_____. If yes, describe__________________

____

Date of last hearing test__________Where? _________

19. When did your child get his last earmolds?________

How many hours a day does your child wear his aid?

____

Does it seem to help him? yes_____no______. If yes, in what ways?_____________________________________

20. Do you communicate to your child using:

(a) single words_____; (b) 2-3 word sentences ____;

(c) longer sentences_____;(d) all of these?

21. Do you communicate to your child orally_____; informal gestures; manual (formal sign language)______;total communication_____; other (explain)

____

22. Do others understand the child's speech?

yes_____no_____

23. Does the child speak in single words__or phrases?__

24. How does the child act near the following sounds?

Fire siren________________________________

Airplane__________________________________

Doorbell or telephone_____________________

Voices____________________________________

Dog barking_______________________________

Door slam_________________________________

Car horn__________________________________

Snowmobile________________________________

Boat motor________________________________

TV/Radio/Phonograph_______________________

List other sounds the child reacts to

____

25. At what age did the child...

Sit up without help?_______Walk without help?_____

Eat with spoon or fork?_____Drink from a glass?___

Dress himself?________Ask to go to the toilet?____

26. Is the child completely toilet trained? yes____no___

27. Does the child dress himself? yes_________no _______

Does the child feed himself? yes__________no _______

28. Does the child have any sleeping problems?

yes______no____

29. Does the child have any eating problems?

yes_______no_____

If yes, describe__________________________________

30. What do you do if the child won't eat?____________

____

31. Does the child wet his bed? Often___Sometimes__Never__

32. Does the child have any particular fears?

yes____no____

If yes, describe ______________________________

____

33. Does the child use mostly his right___

or his left___hand?

Or, does he seem to use either hand equally well? ___

34. What are the child's favourite things?___________

____

35. Does the child nap? yes____no____

If yes, when?________

How long?________

II. MEDICAL INFORMATION:

36. Pediatrician or Family Doctor's name:

Name____

Address_______________________________Phone____

37. Has the child had his eyes checked? yes______no____

If yes, when?___________________Results____________

38. Before the birth of the child:

Did the mother have German Measles, or any virus or cold during the first three months of pregnancy?

yes_____no____

Any other illnesses during the pregnancy?

yes______no_____

If yes, what kind?________________________________

Did the mother have any disturbing experiences or accidents during the pregnancy?

yes_____no ______. If yes, what were they?

____

Was the RH Factor a problem? yes_____no_____

Did the mother use any kind of drugs during her pregnancy? yes_____no_____ If yes, what were they?____

____

39. Were there any problems during the birth of the child?

yes_____no_____. If yes, what kind of problems?

____

_________________________Where was the child born?

Hospital__________Home__________Other place_______

Who delivered the child?

Doctor____

or name of person other than a doctor and qualifications (i.e., midwife, health aide)

if any:____

Was the birth of the child premature? yes_____no__

If yes, how far along was the pregnancy at the time of birth?__________months.

How much did the child weigh?__________

Was delivery induced? yes_____no_____

Was labour prolonged? yes_____no _____

How long did the labour last?______________________

What kind of anesthetic was used?________________

Were instruments used? yes_____no_____

Was it a breech birth? yes_____no_____

Was the cord around the child's neck? Yes_____no___

Was the birth Caesarian Section? yes_____no _____

40. Were there any problems immediately following the birth of the child? yes_____no_____

If yes,what kind?________________________________

____

Was the child in an incubator? yes_____no _____

If yes, how long?____________

Was the child blue? yes _____no____

Were there any feeding problems? yes_____no _____

Was the child jaundiced? yes_____no_____

Did the baby have convulsions? yes_____no

Was the baby weak? yes_____no_____

41. Has the child had any surgery? yes_____no _______

If yes, what kind of surgery and when was it performed?________________________________

____

42. Has the child had ear problems? yes_____no ______

If yes, how often?________________________________

Explain the kinds of problems he has had

____

43. Did the child have any illnesses with long periods of fever shortly after birth? yes_____no _____. If yes, explain________________________________

44. Please note illnesses which the child has had and provide dates if at all possible.

Spinal meningitis______________________________

Diptheria_________________________________

Rheumatoid arthritis___________________________

Small pox ________________________________

Scarlet fever_____________________________

Measles (kind) _______________________________

Mumps____________________________________

Chicken pox_______________________________

Encephalitis______________________________

Whooping cough_____________________________

Convulsions (how many times?)___________________

Epileptic seiures (how often)___________________

Other contagious diseases, illnesses or injuries:

____

Is the child presently on any kind of medication? yes_____no_____. If yes, list type and dosage

____

____

45. Has the child had any trouble with balance or coordination? yes_____no_____. If yes, explain______________________________________

46. Describe any physical problems other than deafness that the child may have, and any corrective devices (glasses, hearing aids, braces etc.), that he is using

____

____

47. List any allergies the child may have.

Medications________________________________

____

____

____

Foods________________________________

____

____

____

Other (hayfever, insects, animals etc.)

____

III. SCHOOLING:

48. Has the child ever attended preschool? yes____no___

If yes, list:

School__________________________________

Address__________________________________

Dates of Attendance:________________________

Hours per day____________________________

49. Has the child received home tutoring of any type?

yes _____no_____. If yes, list:

Name of tutor____________________________

How long child received tutoring:

(years, months, weeks)______________________

How often child received tutoring:

(hours, per week)______________________________

Were parents involved in home tutoring program?

yes_____no_____. If yes, describe how:___________

____

____

APPENDIX B

OBSERVER TRAINING GUIDE

Appendix B

OBSERVER TRAINING GUIDE

HOME VISITS

Ten observation visits will be made to each home over a period of three months. Other visits will be made before, during and after this time to collect other information important to this study.

Observers are to prearrange these visits with the mothers, scheduling times which are (a) convenient and (b) sample different times of day in the homes. After arriving the observer should spend a brief period, approximately 10-15 minutes, speaking with the mother, inquiring about the child's health and noting the general setting. In particular, short notes should be made on the following:

(a) mother and child's apparent health
(b) location of observation;
    kitchen, living room, etc.
(c) who else was present
(d) background sound; TV, radio, etc.
(e) starting time

Any changes (other than time) that occur during the first observation period (20 minutes) should be noted during the intervals between and at the end of the observation periods, (see Sample 1). After the final observation period a brief note should be made as to the observer's opinion about the interactions that occurred during the entire session with emphasis on (i) quantity, (ii) quality (i.e. positive versus negative), (iii) appropriateness (i.e. if child and/or mother were "cuing in" to one another's communication attempts.

OBSERVATION PERIODS

Naturally occurring activities of mother and child are to be recorded as per the categories and qualifiers described in this Appendix. Each recording session will be twenty minutes long with three sessions being recorded per home visit. Pre, post and between observation notes are to be recorded as indicated earlier.

Behaviors of mother and child which occur simultaneously are to be written on the same horizontal line in the recording book; sequential behaviors are to be written on alternate lines. Every 20 seconds, at the sound of a timer in an inconspicuous earphone, the observer will make a horizontal mark on the notebook line. Any single behavior is to be written only once in a ten second period unless it is interrupted by another behavior and then resumed. A continuous behavior is to be indicated by a vertical line for as many time periods as it continues. Sample two represents a sample page of such recording.

MOTHER BEHAVIORS

Name	Code	Descriptions
Expressive Positive	Ex +	M smiles, laughs, hugs, kisses, cuddles, praises, encourages C.
Expressive Negative	Ex -	restrains, shouts, reprimands, punishes, indicates disapproval.
Demonstration	Dem.	shows, guides, prompts, visually demonstrates
Stimulation	Stim.	gives toys, materials
Questions	Q	asks questions to C.
Informing	Inf.	labels, informs, tells about
Expansion	XP	clarifies, develops ideas, adds descriptions
Attn. Seeking	AS	calls, gestures, pulls C, seeks C's attention
Directing	Dir.	gives directions, tells what to do

CHILD BEHAVIORS

Name	Code	Descriptions
Expressive Positive	Ex +	C smiles, laughs, hugs, kisses cuddles, holds M.
Expressive Negative	Ex -	pushes away, resists, turns head (body), cries, screams
Imitation	Im.	mimics verbal or non-verbal cues of mother
Plays with Materials	Pl.	manipulates, holds, uses toys and/or objects
Responds	RSP	physical, verbal or non-verbal response and/or compliance with mother's directions
Questions	Q	asks, shows supplement or need for clarification
Informs	Inf.	labels, informs, tells about
Attn. Seeking	AS	calls, gestures, pulls, seeks M's attention

OTHER CATEGORIES OF COMMUNICATION

N/C	no communication is occurring between child and others which can fit into any of the above categories
Ot/Sib/Fa	these categories will indicate communication with others, siblings or father

MODES OF COMMUNICATION

Communication mode is to be indicated for each time interval. In situations where most communication is in one mode this can be indicated in the initial description of the environment and any use of other modes can be noted as they occur.

MODES:

Oral (O): Speech and/or any type of vocalization

Manual (M): formal sign language and/or fingerspelling

Total Communication (TC): combination of M and O modes simultaneously

Gesture (G): natural gestures which are relatively easily understood in the context of a particular situation (for example, waving "bye-bye").

MOTHER BEHAVIORS

Expressive Positive:

Mother smiles or laughs at or with child; mother hugs, kisses, caresses, fondles, ruffles hair or cuddles child, praises child and/or encourages child to continue.

Expressive Negative:

Mother restrains baby's activity physically and deliberately; mother physically or verbally punishes child; mother takes away objects from child, shows disapproval including frowns and other non-verbal gestures such as shaking finger.

Demonstration:

Mother physically guides or prompts infant at a task, shows a child how a task should be performed. Repeated (more than once in ten second interval) demonstrations of signs and/or lip movements are included.

Stimulates with Materials:

Mother introduces child to activities with toys, books, or any type of materials that can be physically manipulated. T.V. is not included but should be indicated when describing setting.

Question:

Mother asks child a question. Intent of response is not to be interpreted here and all questions are to be coded.)

Informing:

All mother's communication which refers to the environment directed toward child. Labelling, giving information about objects, toys, people, the child.

Expansion:

Mother clarifies, builds upon or develops ideas generated to and/or by the child. At least one other desctiption, other than label, must be added by mom to consider being coded in this category.

Eg: Child: (points to TV) "Doggie!"
Mother: "Yes, doggie" (Coded informing)
"Doggie is brown" (Expansion, i.e. one more description other than label)

Attention Seeking:

Mother tries to attract child's attention by calling, vocalizing, gesturing, pulling. Other physical gestures such as turning on and off lights (common with deaf families) or stamping floor are included).

Directing:

Mother gives child directions as to tasks he is to perform.

Eg: "Put your clothes away"
"Bring me your slippers"

Negative directions are to be coded as expressive negative:

Eg: "Don't put your toys on the table"

INFANT BEHAVIORS

Expressive Positive:

Child smiles or laughs at or with mother; child hugs, kisses, holds or cuddles mother.

Expressive Negative:

Child pushes away from mother, resists mother, ignores mother by turning head or self, cries, screams, yells, shrieks. All other indicators of disapproval such as hitting, kicking, pouting are included.

Imitation:

Child's immediate response to mother's verbal or non-verbal behaviors. This includes imitation of lip movements, verbalizations, mimics and/or signs.

Plays with materials:

Child manipulates or examines any object and/or toy. Includes helping mother with chores such as baking or cleaning house.

Response:

Child physically, verbally or non-verbally responds to directions from mother (followed within 10 seconds). This category includes responses to requests or directions and not imitations of behaviors.

eg: Mom "Put book on shelf" (direction)
 (1) Child (puts book on shelf) response
 (2) Child (throws book on floor) response, expressive negative
 (3) Child doesn't move so mother puts book away and then returns to child who puts it away (imitation) for child and preceded by demonstration by mother).

This category also includes responses, including non-verbal compliance to "expressive negative" acts of mother.

eg: "Stop putting the sugar in that bowl"(MOTHER)
 (CHILD) Stops her actions.

Questions:

Child asks mother a question; shows mother object for clarification (shows definite look of puzzlement).

eg: Child points to object with puzzled look (questions)
 Mother says "that's a pig" (informing)
 Mother says "the pig is fat" (expanding)

Informing:

All child's communication which refers to environment directed towards mother. Labelling, giving information about objects, toys, people. This category does not include imitation.

Attention Seeking:

Child tries to attract mother's attention by calling, vocalizing, gesturing, pulling. Expressive negatives are not included in this category.

SAMPLE 1

HOME VISIT SCHEDULE SAMPLE

9:00 a.m.

-arrive at home

-chat with mother and child

-write brief description of mother, child and setting (eg. mom is cleaning upand washing dishes, child on floor playing with crayons and paper; both appear in good health, mom indicates that child has been well all week.

Location - Kitchen; no others present.
Television is on in
living room.

Observation starting time 9:14

20 minute observation

-Brief description of setting and happenings (eg. mom finished dishes and moved to living room with child to watch cartoons on TV. Mom was using TV extensively to teach new signs to child.

20 minute observation

-Child watching TV and mom cleaning living room. Less interaction now although child is using some signs to indicate objects on TV.

20 minute observation

-Child and mom moved back and forth from living room to kitchen to get snack for child. More interaction during this session. Mom appears to pick up most of childs cues for needs and/or conversation. Very little negative interaction during these sessions and the majority of time seemed to involve some type of interaction between the two. Observation ended at 10:35

SAMPLE 2

OCCASION

Mother and child are in the kitchen. Mother smiles at the child, giving him a toy and explaining in sign and verbal language what it is. Child takes and plays with toy while Mother repeats what it is for a short period. Mother asks what the toy is and child tells her in sign and smiles. Mother labels toy (twice and child imitates). Mother labels toy and adds an adjective (blue) or expands. Child responds by imitating Mother in total communication. Mother tells child to put toy away and the child follows her directions by doing it (responds). Child asks what the other toy on the shelf is (questions) and Mother (informs) him that it is a truck.

MOTHER	CHILD
Ex +, Stim., Inf. (TC)	
	Pl.
Inf. (TC)	│
Inf. (TC)	↓
Q (TC)	
	Inf. (M), Ex+
Inf. (TC)	
	Im. (TC)
Inf. (TC)	
	Im. (TC)
Inf., XP (TC)	
	Im. (TC)
Dir. (TC)	
	RSP
	Q (G)
Inf. (TC)	

APPENDIX C

ATTITUDES TOWARDS DEAF PERSONS QUESTIONNAIRE

FORM A AND FORM B

Appendix C

ATTITUDES TOWARDS DEAF PERSONS QUESTIONNAIRE

ATDP SCALE - FORM A

ATDP SCALE

Read each statement and put an "X" in the appropriate column on the answer sheet. Do not make any marks on the sheets. Please answer every question.

---

1. Deaf people are often unfriendly.
2. Deaf people should not have to compete for jobs with hearing people.
3. Deaf people are more emotional than other people.
4. Most deaf persons are more self-conscious than other people.
5. We should expect just as much from deaf as from hearing persons.
6. Deaf workers cannot be as successful as other workers.
7. Deaf people usually do not make much of a contribution to society.
8. Most hearing people would not want to marry anyone who is deaf.
9. Deaf people show as much enthusiasm as other people.

PAGE 2 ATDP SCALE FORM A

10. Deaf persons are usually more sensitive than other people.

11. Profoundly deaf persons are usually untidy.

12. Most deaf people feel that they are as good as other people.

13. The driving test given to a deaf person should be more severe than that given to the hearing person.

14. Deaf people are usually sociable.

15. Deaf persons usually are not as conscientious as hearing people.

16. Profoundly deaf persons probably worry more about their health than those who have minor hearing loss.

17. Most deaf persons are not dissatisfied with themselves.

18. There are more misfits among deaf persons than among hearing persons.

19. Most deaf persons do not get discouraged easily.

20. Most deaf persons resent hearing people.

21. Deaf children should compete with hearing children.

22. Most deaf persons can take care of themselves.

23. It would be best if deaf persons would live and work with hearing persons.

24. Most deaf people are just as ambitious as hearing persons.

25. Deaf people are just as self-confident as other people.

26. Most deaf persons want more affection and praise than other people.

27. Deaf persons are often less intelligent than hearing ones.

28. Most deaf people are different from hearing people.

29. Deaf persons don't want any more sympathy than other people.

30. The way deaf people act is irritating.

ATDP - FORM B

ATDP SCALE

Read each statement and put an"X" in the appropriate column on the answer sheet. Dot not make any marks on the question sheets. Please answer every question.

---

1. Deaf persons are usually friendly.
2. People who are deaf should not have to pay income taxes.
3. Deaf people are no more emotional than other people.
4. Deaf persons can have a normal social life.
5. Most deaf persons have a chip on their shoulder.
6. Deaf workers can be as successful as other workers.
7. Very few deaf persons are ashamed of their disability.
8. Most people feel uncomfortable when they associate with deaf people.
9. Deaf people show less enthusiasm than hearing people.
10. Deaf people do not become upset any more easily than hearing people.
11. Deaf people are often less aggressive than hearing people.
12. Most deaf persons get married and have children.

PAGE 2 ATDP SCALE FORM B

13. Most deaf persons do not worry any more than anyone else.

14. Employers should not bee allowed to fire deaf employees.

15. Deaf people are not as happy as hearing ones.

16. Profoundly deaf people are harder to get along with than are those with minor hearing loss.

17. Most deaf people expect special treatment.

18. Deaf persons should not expect to lead normal lives.

19. Most deaf people tend to get discouraged easily.

20. The worst thing that could happen to a person would be for him to be deaf.

21. Deaf children should not have to compete with hearing children.

22. Most deaf people do not feel sorry for themselves.

23. Most deaf people prefer to work with other deaf people.

24. Most deaf persons are not as ambitious as other people.

25. Deaf persons are not as self-confident as hearing persons.

26. Most deaf persons don't want more affection and praise than other people.

27. It would be best if a deaf person would marry another deaf person.

28. Most deaf people do not need special attention.

29. Deaf persons want sympathy more than other people.
30. Most deaf persons have different personalities than hearing persons.

APPENDIX D

THE BROWN PARENT ATTITUDE SCALE

YOUR CHILD THIRTY YEARS FROM NOW

Appendix D

THE BROWN PARENT ATTITUDE SCALE

YOUR CHILD THIRTY YEARS FROM NOW

What will your child be doing thirty years from now? Knowing your child, you may be able to make some good guesses. Place an (X) in the column which indicates the degree of chance you feel there is that the statement will be a true description of your child thirty years from now.

		Very Good Chance	Fairly Good Chance	Some Chance	A Little Chance	No Chance At All
1.	Will be a college graduate					
2.	Will have speech that is easily understood by most people.					
3.	Will read at about fifth or sixth grade level or below					
4.	Will use sign language as his preferred means of communication					
5.	Will have more deaf friends than hearing friends					
6.	Will be active in PTA, Rotary, Kiwanis or other similar organizations					
7.	Will know neighbours well					

8. Will be thought of as having normal hearing by people who meet him

9. Will have graduated from a regular high school

10. Will drive a car

11. Will depend on speech reading more than on his hearing

12. Will be married to a person with normal hearing

13. Will be employed in a semi-skilled or skilled job rather than a profession

14. Will be close to his brothers and sisters

15. Will have difficulty in using English correctly

16. Will be in good health

17. Will use both oral and manual communication

18. Will keep in touch with me

19. Will belong to organizations of deaf and hard of hearing

APPENDIX E

PARENTAL CONSENT FORM

Appendix E

PARENTAL CONSENT FORM

March 23, 1981.

Dear Parents:

Attached you will find two forms. One is a consent form so that I may collect the necessary audiological, medical and educational data from your child's files either at the preschool he/she may attend and/or the respective hospital that he/she goes to for examinations. This information is necessary so as to determine amount of hearing loss (if any), type of aids used etc., as well as information on the child's development from birth.

The second form will enable you, as parents, to give me much of the necessary data. I would appreciate it if you could fill this out as accurately as possible. I realize that it appears long but much of it can be done with a yes or no answer so should not take too much of your time.

I sincerely appreciate your co-operation and especially your patience in this matter. Please return the forms to your observer at your earliest convenience.

Sincerely,

Douglas E. Anderson.

March 19,1981.

Child's Name:

Birthdate:

I hereby give Douglas E. Anderson permission to obtain and use audiological, medical and educational data on my child for the purposes of his research study. I understand that this data data will be used solely for research purposes and that family names will be kept confidential.

Parent or Guardian

APPENDIX F

RESULTS

Appendix F

Results

Results of the study will be presented in several sections: (A) description of the sample; (B) general results from the *Leiter International Performance Scale*; (C) analysis of the *Attitude Towards Disabled Persons* (modified for deaf) questionnaire information; (D) analysis of the *Brown Parent Attitude Scale* results; (E) analysis of the *H.O.M.E. Scale* results and (F) analysis of the *Parent Child Observation* results. A final summary of the inter-relationships among the various measures will also be given.

A. Description of the Sample

Nine mother-child dyads participated in the study, constituting five separate groups. A demographic description of each child, in each group, is provided to enhance the reader's understanding of the groups as they are presented in the various tables and discussions further in this chapter. Each dyad is described in terms of the hearing status of the mother first (i.e.) hearing or deaf (H or D) and the hearing status of the child second. One further subscript is used to differentiate the 'oral' dyad which is described as H/Do (hearing mother, deaf child - oral approach).

Group One (D-D)

Group One consisted of two dyads of deaf mothers and deaf children. Both children had profound hearing losses and were diagnosed and fitted with hearing aids before one year of age. Total communication was the advocated mode of communication in both homes. Tables 2 and 3 present all other descriptive data on these dyads.

Group Two (H-D)

Group Two consisted of two dyads of hearing mothers with deaf children who advocated a total communication approach in the home. Both children had profound hearing losses and were fitted with hearing aids at twelve and fifteen months of age respectively. Both children had pre-natal and/or birth irregularities possibly related to the etiology of deafness. One child was exposed to mother's glue sniffing during pregnancy while another child was born three-and-one half months premature and suffered a lack of oxygen at birth. This latter child was also legally blind at birth, although corrective glasses have enabled her to see well enough to sign, read signs, and manoeuver around the house without much difficulty. Mother three of this group, although advocating a total communication approach in the home, used this approach for only about half of her communications. Tables 2 and 3 present all other descriptive data on these dyads.

Group Three (H-Do)

Group Three consisted of one dyad with a hearing mother and a deaf child who used oral communication in the home. This child had a moderate hearing loss and was not diagnosed and fitted with hearing aids until two-and-one-half years of age. Tables 2 and 3 present all other descriptive data on this dyad.

Group Four (D-H)

Group four consisted of two dyads of deaf mothers and hearing children. Total communication was the advocated mode of communication in both homes and both children could express themselves fluently, verbally and through sign. One of these children, of family six, was the only child with no preschool and/or structured intervention experience. Tables 2 and 3 present all other descriptive data on these dyads.

Group Five (H-H)

Group Five consisted of two dyads of hearing mothers with hearing children, using verbal English as their communication mode in the home. Tables 2 and 3 present all other descriptive data on these dyads.

B. The Leiter International Performance Scale

The mental age levels as well as corresponding IQ scores for each child are presented in Table 2. There was no reason to believe these scores to be inaccurate, except possibly in the case of child 4 who has some rather serious visual problems, and considering the visual acuity needed for this test, the results may be somewhat deflated. All other children reacted normally in the testing situation producing a range of scores from 56 to 140, with an overall mean score of 109.2. Table 2 presents each child's scores as well as a cross reference with other descriptive data.

C. Attitudes Towards Disabled Persons (Modified for Deaf) Questionnaire (ATDP)

The attitude scores and corresponding percentile ranks for both testing times are presented as mean percentiles across times in Table 9. From these, it can be seen that the mothers in the study have vastly different attitudes towards deaf people, ranging from a mean percentile rank of 9 to a mean percentile of 95. Figure 1 graphically presents these results for each family in the study. ATDP scores may be interpreted as reflecting either the subjects perceiving the deaf as basically the same as, or different from the hearing; a high score indicates the perception of the deaf as being similar to the hearing, while a low score indicates the perception of dissimilarity between the deaf and the hearing. The perception of differences in characteristics of, and treatment of the deaf might be interpreted as rejection of the deaf, or prejudice. At the same time, this scale may indicate the degree of positive and negative stereotyping in the hearing person's attitudes towards deaf people. Beyond these points, Yuker et.al (1970) points out that the respondent who is deaf and who perceives deaf people as different from hearing people, may be projecting

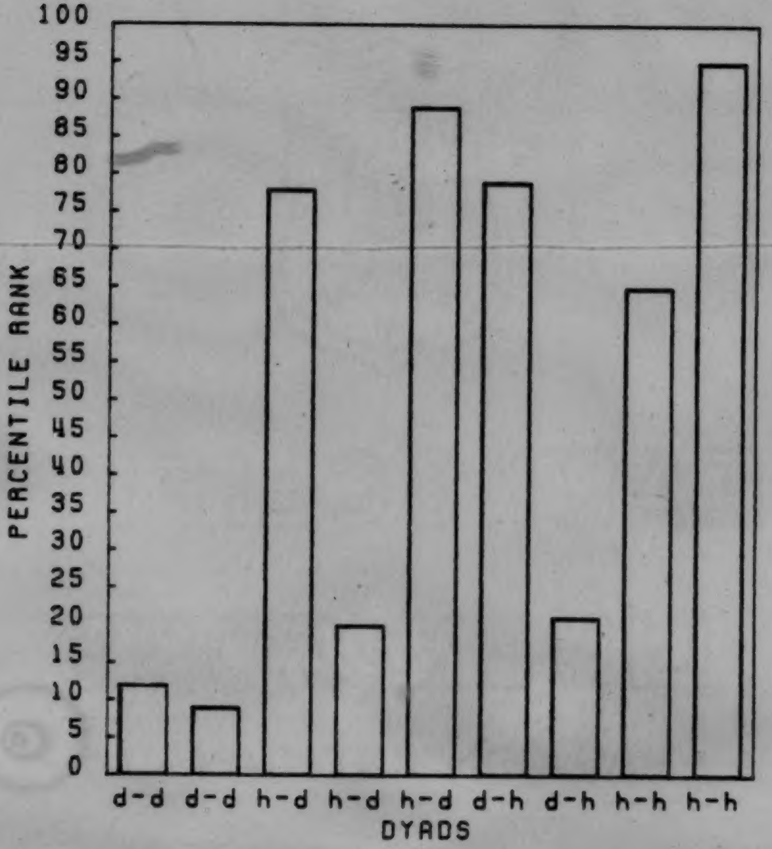
TABLE 9

MATERNAL ATTITUDES, EXPECTATIONS AND ACCEPTANCE REGARDING THE DEAF

	FAMILY								
	1 (D-D)	2 (D-D)	3 (H-D)	4 ((H-D)	5 (H-Do)	6 (D-H)	7 (D-H)	8 (H-H)	9 (H-H)	Ov'all $\bar{\bar{x}}$
Attitudes Towards Deaf People ($\bar{x}$ %-ile)	12	9	77.5	20	89	79	21	65	95	51.9
Brown Parent Attitude Scale (%)	74	80	76	62	79	86	86	95	100	82
Parental Acceptance of Deafness (%)	96	80	68	72	40					71

FIGURE 1

ATTITUDES TOWARDS DEAF PERSONS SCALE



his attitude toward himself. In this sense the ATDP may represent a measure of the deaf person's self-concept.

Considering these points, it is important to note the hearing status of both mother and child when reviewing the ATDP scores. Five mothers, four hearing and one deaf, scored between the 65th and 95th percentile, indicating a relatively high degree of acceptance of the deaf as being the same as hearing people. Three of these mothers had hearing children, while two mothers had deaf children. The other four mother's mean ATDP scores ranged from the 9th to the 21st percentile, indicating a relatively low degree of acceptance of the deaf as being the same as hearing people. Three of these mothers were deaf and one was hearing, while three of the children were also deaf and one was hearing. In essence, 80 percent of the hearing mothers scored significantly positive attitudes towards deaf persons, while 75 percent of the deaf mothers scored significantly negative attitudes toward deaf persons. The former group would indicate that they see deaf people as being basically the same as hearing people, while the latter would indicate the perception of significant differences between deaf and hearing persons, and a high probability of low self-concept among these mothers.

In a similar study with school aged children and their mothers, Corson (1973), using an opinion scale like the ATDP, also found that deaf parents expressed a significantly negative opinion about deafness compared to their hearing counterparts. Specifically, the deaf parents in Corson's study were more negative in areas described as:

(a) generalized rejection:

> ...implies a generalized negative orientation towards the deaf, a derogatory image of their ability and appearance, disturbance in empathic relations and reluctance to interact. Segregation of the deaf from those who can hear is advocated. (pp. 56).

and

(b) inferred emotional consequences:

> ...a view of the deaf person's character and emotional state as unpleasantly warped by his condition. Perceived maladjustment, irritability, self-consciousness and hypersensivitity as well as perceived willfull misunderstanding on the part of deaf persons, are other aspects of the factor. (pp. 56).

Although these conditions are not specifically implied within the ATDP scales, Yuker et al (1970), in discussing the implications of the ATDP scores, do emphasize the importance of low scores by persons affected by the disability. Yuker and his colleagues discuss these low scores in terms of poor self-concept, providing a more generalized agreement with Corson's (1973) later work.

D. Brown Parent Attitude Scale

The mean scores of parental expectation as determined by the *Brown Parent Attitude Scale* among all families are presented in Table 9.

Expectations of hearing parents with hearing children constitute the highest scores, while deaf parents with hearing children have the next highest expectations. All parents with deaf children scored below the mean, while hearing parents with deaf children had the lowest mean score of expectation. The range of scores was from 62 to 100 percent, with a mean of 82 percent. Figure 2 graphically presents these results for each family in the study.

In order to compare the results of this scale with Corson's (1973) work, a further analysis of the scale was made so as to reflect a parental acceptance factor as discussed in earlier chapters. Table 9 presents the result of parental replies to selected questions clarifying what Corson (1973) describes as the components of the parental acceptance of deafness within the Brown Scale.

Based on the rating of five points for the ideal answer, deaf parents of deaf children showed markedly different replies than hearing parents of deaf children. The one hearing parent of a deaf child using the oral communication method showed a lower score than either of the other groups. Mean converted scores ranged from 40 to 96 percent with an overall mean score of 71 percent. Figure 3 graphically presents these results for each family in the study.

As a group, deaf parents were more receptive than hearing parents to the idea that their children will use sign language as their preferred means of communication,

FIGURE 2

BROWN PARENT ATTITUDE SCALE

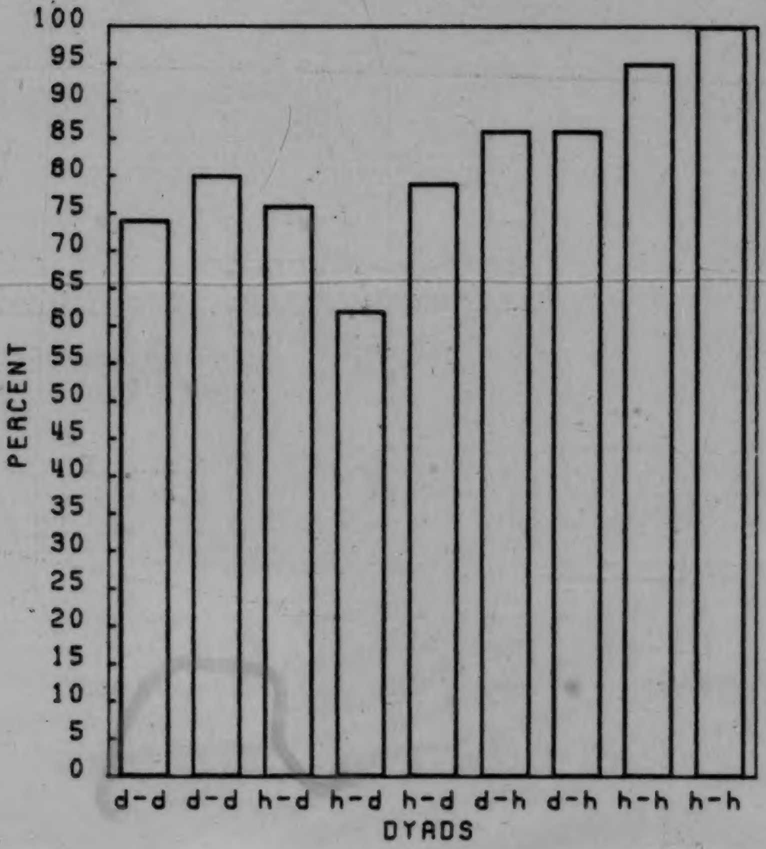
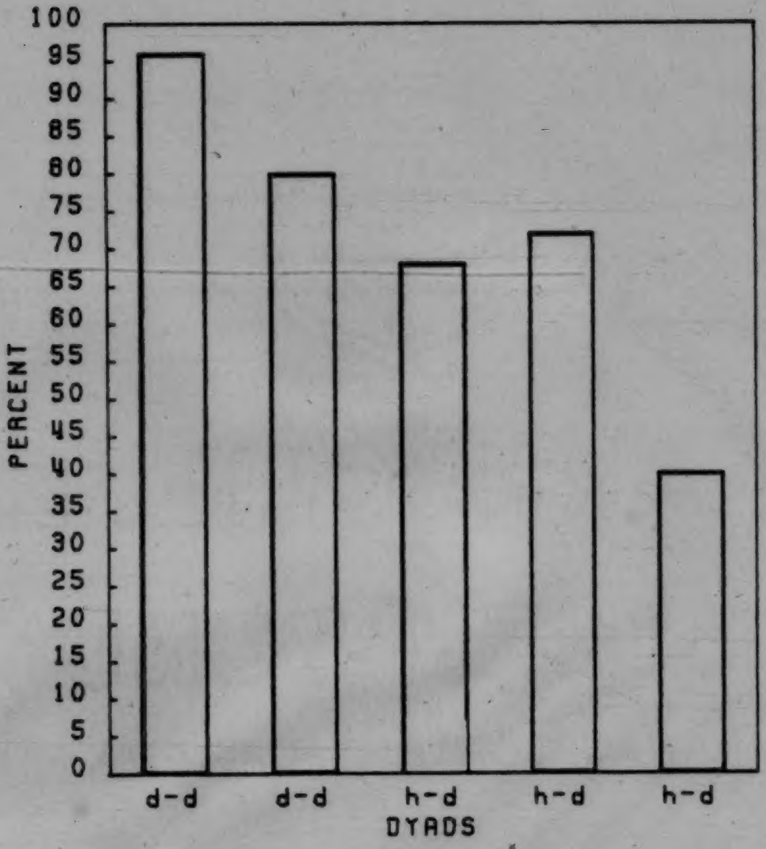


FIGURE 3

ACCEPTANCE OF DEAFNESS IN FAMILIES WITH DEAF CHILDREN



will have more deaf friends than hearing friends, will be married to a person with non-normal hearing, will have difficulty in using English correctly and will use both oral and manual communication. The deaf parents scores were 80 to 96 percent respectively, with a mean of 88 percent. The hearing parents of deaf children using a total communication approach were moderately receptive to these questions, scoring many answers in the 'mid point' category, with total acceptance scores of 68 and 72 percent respectively and an overall mean of 70 percent. The hearing parent of a deaf child using oral communication was not receptive to these questions, with an overall acceptance score of 40 percent, indicating values closer to those of hearing parents with hearing children.

The overall results of the Brown Parent Attitude Scale support two overriding trends found in Corson's (1973) work:

a. Parents with hearing children, and parents with deaf children who use 'oral' communication methods tend to have higher expectations for their children than deaf and hearing parents using a total communication approach with their deaf children.

b. Deaf parents of deaf children have significantly more positive acceptance towards deafness than do hearing parents of deaf children.

Further to this, the 'oral' mother in this study also showed a marked negative acceptance when compared to either of the two other groups measured on acceptance.

E. Home Observation for Measurement of the Environment (H.O.M.E.) Scale

Due to the age range of the children involved, both versions of the H.O.M.E. scale were necessary. Raw scores, percentile bands and total scores expressed in percentages are presented for each family in Tables 10 and 11. All families were rated in the mid to upper percentile bands in the majority of categories. Two families scored in the bottom tenth percentile in one subscale each, while three other families scored in the lower 25th percentile band, also in one subscale each. Total percentage scores ranged from 71 percent to 91 percent, all in the upper 25th percentile band, with an overall mean percentage score of 81 percent.

F. Parent Child Observation Results

Interaction Time

Mothers and children in this study spent an average of 98 percent of their time together during observation sessions. Although the children often left the room for brief periods, any separation of more than 2 minutes resulted in the observer stopping the observation and resuming when the child returned. Cases where observations

TABLE 10

HOME OBSERVATION AND MEASUREMENT OF THE ENVIRONMENT
(BIRTH TO THREE YEARS)

	FAMILY									
	1 (D-D) Raw Score	1 (D-D) %-ile Band	3 (H-D) Raw Score	3 (H-D) %-ile Band	4 (H-D) Raw Score	4 (H-D) %-ile Band	6 (D-H) Raw Score	6 (D-H) %-ile Band	8 (H-H) Raw Score	8 (H-H) %-ile Band
I Respons. of Mother	10	Upper 25	9	Mid. 50	10	Upper 25	8	Mid. 50	11	Upper 10
II Avoidance of Restr'n and Punish't	6	Mid. 50	6	Mid. 50	3	Lower 10	7	Upper 25	7	Upper 25
III Organ'z'n of Envir.	3	Lower 10	6	Upper 25	6	Upper 25	6	Upper 25	6	Upper 25
IV Appropr. Play Mat'ls	7	Mid. 50	8	Upper 25	10	Upper 10	6	Mid. 50	9	Upper 25
V Maternal Invlvmt.	4	Mid. 50	2	Lower 25	6	Upper 10	4	Mid. 50	4	Mid. 50
VI Opport's. For Var. in Stim.	2	Mid. 50	4	Upper 25	5	Upper 10	4	Upper 25	2	Mid. 50
Total	32	Upper 25	35	Upper 25	40	Upper 25	35	Upper 25	39	Upper 25
Total %	71		78		89		78		87	

TABLE 11
HOME OBSERVATION AND MEASUREMENT OF THE ENVIRONMENT
(THREE TO SIX YEARS)

	FAMILY							
	2 (D-D) Raw Score	2 (D-D) %-ile Band	5 (H-Do) Raw Score	5 (H-Do) %-ile Band	7 (D-H) Raw Score	7 (D-H) %-ile Band	9 (H-H) Raw Score	9 (H-H) %-ile Band
I Stim. Through Toys, Games, Books	8	Mid. 50	8	Mid. 50	9	Mid. 50		10
II Lang. Stimulation	7	Mid. 50	7	Mid. 50	7	Mid. 50	7	Mid. 50
III Phys. Environment	7	Mid. 50	7	Mid. 50	7	Mid. 50	7	Mid. 50
IV Pride, Aff., W'mth	7	Upper 10	5	Mid. 50	5	Mid. 50	6	Upper 25
V Stim. of Acad. Beh.	4	Upper 25	4	Upper 25	5	Upper 10	5	Upper 10
VI Encour't Soc. Mat.	3	Upper 25	2	Mid. 50	1	Lower 25	3	Upper 25
VII Var. of Stimulation	6	Mid. 50	4	Lower 25	5	Mid. 50	7	Mid. 50
VIII Phys. Punishment	4	Mid. 50	4	Mid. 50	3	Mid. 50	4	Mid.
Total	46	Upper 25	41	Upper 25	42	Upper 25	50	Upper 10
Total %	84		75		76		91	

continued were when the child was being cared for by another person, including siblings, which constituted 2 percent of the time overall, with a range of 0 - 8 percent across the families.

Considering the high proportion of time mother and child spent together, it is interesting that the overall mean interaction time was 53 percent (range 18% - 77%). Interaction time does not include play time by the child unless some other form of communication was simultaneously taking place. Table 12 presents the relative proportions of total interaction time for each individual family. Group times were not considered meaningful due to the large differences in interaction times between families within the same group, particularly Groups 2, 4, and 5.

The opposite of interaction time was no communication which was defined as a complete 20 second interval in which there were no communicative acts, other than play, either one way or reciprocal, taking place. The mean overall time for no communication was 47 percent (range 23% - 88%). These relative proportions are also shown in Table 12.

Interaction Events

Mother's communication events across families ranged from 38.8 per session to 284.5 per session with an overall mean of 115.5 per observation session. In all cases except one, mothers constituted the higher percentage of communication between themselves and their children. The range was from 52 percent to 76.4 percent. The one exception

TABLE 12

INTERACTION TIME

	FAMILY									
	1 (D-D)	2 (D-D)	3 (H-D)	4 (H-D)	5 (H-Do)	6 (D-H)	7 (D-H)	8 (H-H)	9 (H-H)	$\overline{x}$
Tot. Int'n Time (%)	52.8	51.7	18.3	76.7	59.5	73.3	45.5	35.5	64.3	53.1
*Intra-dyad Int'n (M/C %)	61.61 38.9	56.7 43.4	64.4 32.6	76.4 23.7	52.0 48.0	54.7 45.3	55.6 44.4	62.2 37.8	47.7 52.3	59.4 40.7
*$\overline{x}$ Int'n Events (M)	160.2	125.2	38.8	234.5	170.5	213.5	149.1	69.6	112.5	147.1
*$\overline{x}$ Int'n Events (C)	99.8	95.8	18.8	88.1	157.3	177.1	119.2	42.3	123.4	102.4
*% No Communic'n	47.2	48.3	81.7	23.3	40.6	26.7	54.4	64.4	35.6	46.9
*$\overline{x}$ Length Int'n Bouts (sec.)	81	57	45	118	76	118	88	41	140	85.0
*$\overline{x}$ Length Play (min.)	29.4	39.2	44.2	33.0	25.3	27.7	30.5	33.6	21.3	31.6
*$\overline{x}$ Time M Not Pres. (min.)	1	1	1	0	2	1/2	5	0	0	1.2
*$\overline{x}$ Time Media Used (min.)	58	10	12 (rad.)	12 (rad.)	58	47	33	18	28	

*These rows 2-7 are expressed in units per observation session.

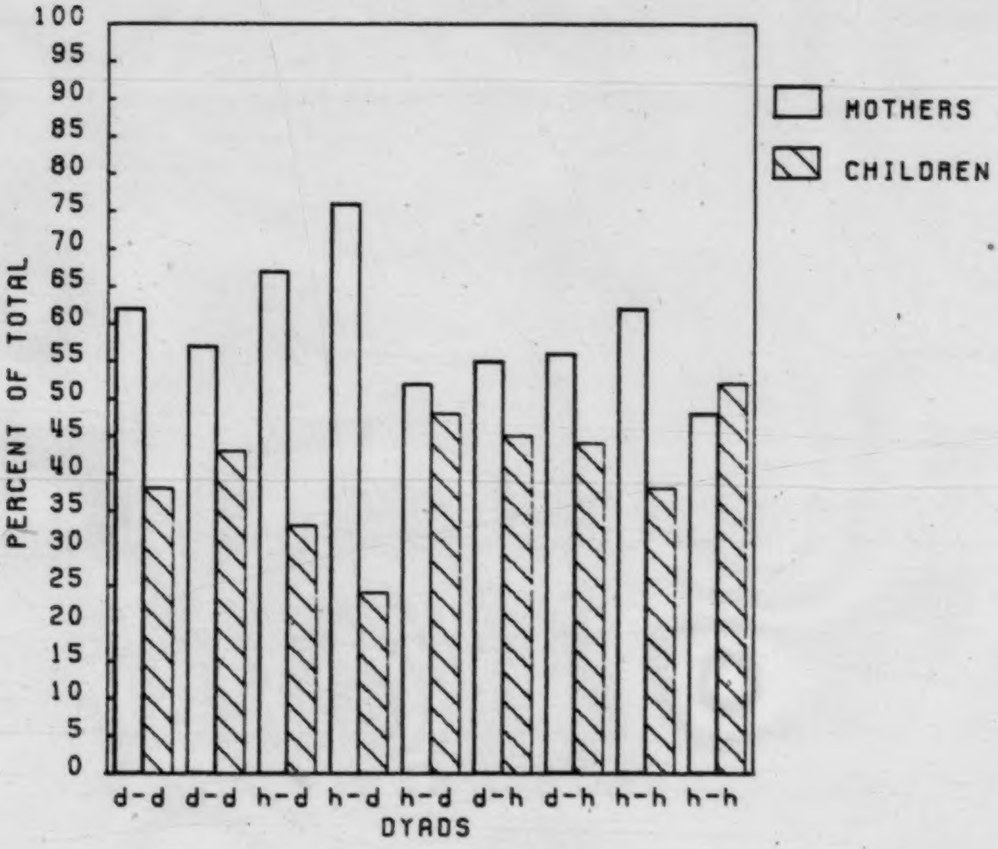
contributed 47.7 percent to the overall communication between herself and her child. Figure 4 graphically presents the intra-dyad interaction percentages for each family in the study.

Children's communication events across families ranged from 18.8 per session to 177.1 per session with an overall mean of 102.4 per observation. Children's percentage contributions to the interaction between them and their mothers ranged from 23.7 percent to 52.3 percent. Table 12 presents the relative proportions of total communication events across families. As with interaction time, the stability within groups, especially groups 2, 4 and 5 is certainly questionable, making mean group proportions somewhat meaningless.

Within the groups with deaf children, the children with hearing mothers advocating total communication, had the least number of communication events per session while the 'oral' child had the highest number of events per session. Also within these groups, the 'oral' mother had the second highest number of events per session. The hearing mothers with deaf children ranged considerably, from lowest to highest events per session and also showed the highest discrepancy in percentage contribution to the interaction process between themselves and their children. Deaf mothers with deaf children both scored above the mean number of interaction events per session while their children scored just slightly below the mean.

FIGURE 4

INTRA-DYAD INTERACTION



Within the two groups with hearing children, the dyads with deaf mothers, overall, had more communication events per session than dyads with hearing mothers.

Overall, deaf parents, regardless of the hearing status of their children, averaged 27 more communication events per observation session than hearing parents. In contrast, hearing children, regardless of the hearing status of their parents, averaged 23 more communication events per session than the deaf children of this study. Table 12 presents the relative proportions of interaction events per session and displays the wide range of scores affecting the various groups discussed.

Bout Length

Interaction bouts are defined as periods of time that mother and/or child are involved in some form of communicative act with the other and are not interrupted by a period of more than twenty seconds of no communication. The mean length of bouts across families ranged from 41 to 140 seconds with an overall mean of 85 seconds. As with the other descriptive measures of interaction time, the mean bout length showed little consistency within groups. Group four, deaf mothers with hearing children, was the only group with both scores consistent relative to the mean. All other groups with pairs had one score above and one below the mean. Table 12 presents the mean bout length, in seconds, for each family.

While no other consistencies within groups were found, the mean bout length did correlate significantly ($p<.01$, $r=.82$) with the amount of time each dyad had in communication. Families who interacted more also interacted for longer periods without stopping.

Media

Television was a frequent accompaniment to child and maternal activities in seven of the nine homes. The two other families did not use the television ever during observation visits but did use the radio for a mean length of time of twelve minutes per session. The families using television ranged from 10 minutes to 58 minutes per sesssion, with an overall mean across the seven families of 36 minutes per observation session. Table 12 presents the mean length of time media was used for each family per observation session.

Interestingly, the group not using television at all was the hearing mothers with deaf children, while the hearing mothers with hearing children used it sparingly ($\bar{x}=23$ min.). One hearing mother used the television extensively ($\bar{x}=58$ min.), but overall, hearing mothers, regardless of the hearing status of their children, used the television for a mean time of 21 minutes. The deaf mothers, however, regardless of the hearing status of their children, used the television for a mean time of 37 minutes per observation session, 62 percent of the time as compared to 35 percent of the time by hearing mothers.

Interaction Behaviours - Percentages and Proportions

Table 13 presents the frequencies and percentages of each mother behavior, while Table 14 presents the same data for each child in the study. Table 14 does not include play as one of the child's behaviors, since it was not considered interactive with mother, by itself. However, it is included in Table 12 and is displayed as a function of time rather than event, because of its relative continuity compared to other, more interactive events. Frequencies are included in Tables 13 and 14, to more accurately display interactive events of mother and child relative to the group as a whole.

Overall, mothers and children interacted for a mean time of 31.9 minutes per one hour observation session. In that time, mothers averaged one hundred and fifteen interactive events, while children had an overall mean event score of 102.4. Across all families mothers accounted for a mean of 59.4 percent of the reciprocal interaction between themselves and their children, and children accounted for a mean of 40.6 percent.

Total events across all observation sessions ranged from 388 to 2135 for mothers and 188 to 1771 for children. Total time spent interacting, not including solitary play, ranged from 110 minutes to 460 minutes. Other time was non-interactive between mother and child and included solitary play time for the child.

(i) Mother's Behaviors

TABLE 13
MATERNAL ACTIVITIES AS PERCENTAGES OF COMMUNICATION EVENTS OVER TIME

	FAMILY									
	1 (D-D)	2 (D-D)	3 (H-D)	4 (H-D)	5 (H-Do)	6 (D-H)	7 (D-H)	8 (H-H)	9 (H-H)	
BEHAVIOR RAW SCORE /%										$\overline{x}$ ACR. FAMS. RAW SCORE/%
Exp. Pos.	56 3.49	75 5.99	40 10.30	09 3.47	92 5.39	107 5.01	85 6.55	29 4.16	37 3.28	68.8 5.29
Exp. Neg.	65 4.05	57 4.55	42 10.82	118 4.14	40 2.34	28 1.31	11 .84	4 .57	5 .44	41.1 3.22
Demonstr.	65 4.05	38 3.03	16 4.12	31 1.08	18 1.05	102 4.77	22 1.69	4 .57	6 .53	33.5 2.32
Direct	143 8.92	130 9.50	47 12.11	752 26.43	257 15.07	95 4.44	108 8.32	101 14.51	138 12.26	195.6 12.39
Stimulate	61 3.80	81 6.40	50 12.88	43 1.51	9 .52	146 6.83	53 4.08	15 2.15	9 .80	51.8 4.33
Question	143 8.92	138 11.02	61 15.72	320 11.24	456 26.74	519 24.30	379 29.22	235 33.76	376 33.42	291.8 21.59
Inform	841 52.49	589 47.04	121 31.18	1413 49.66	791 46.39	1064 49.83	545 42.02	305 43.82	546 48.53	690.6 45.7
Attn. Seek	201 12.54	149 11.90	11 2.83	62 2.17	36 2.10	49 2.29	94 7.24	2 .28	8 .71	68.0 4.70
Expand	27 1.68	5 .39	0 0	7 .24	6 .35	25 1.17	0 0	1 .14	0 0	7.90 .44
Total Within Families Raw Score /%	1602 61.61	1252 56.65	388 67.36	2845 76.35	1705 52.01	2135 54.66	1297 55.40	696 62.20	1125 47.69	
Tot. % Acr. M's	12.28	9.59	2.97	21.81	13.07	16.37	9.94	5.34	8.62	

TABLE 14

CHILD ACTIVITIES AS PERCENTAGES OF COMMUNICATION EVENTS OVER TIME

	FAMILY									
BEHAVIOR RAW SCORE /%	1 (D-D)	2 (D-D)	3 (H-D)	4 (H-D)	5 (H-Do)	6 (D-H)	7 (D-H)	8 (H-H)	9 (H-H)	$\bar{x}$ ACR. FAMS. RAW SCORE/%
Exp. Pos.	52 5.21	51 5.32	19 10.11	72 8.17	37 2.35	90 5.08	79 7.56	4 0.95	14 1.13	46.4 5.10
Exp. Neg.	46 4.60	15 1.57	44 23.40	75 8.51	59 3.75	94 5.31	25 2.39	13 3.07	30 3.07	44.6 6.11
Imitate	64 6.41	31 3.24	7 3.72	34 3.86	149 9.48	102 5.76	23 2.20	3 .71	5 .41	46.4 4.0
Respond	97 9.71	88 9.19	24 12.77	569 64.59	206 13.10	81 4.57	64 6.13	101 23.88	136 11.02	151.8 17.2
Question	123 12.32	45 4.69	0 0	1 .11	41 2.60	204 11.52	38 3.63	13 3.07	337 27.31	89.1 7.25
Inform	571 57.21	639 66.70	44 23.40	118 13.39	1040 66.12	1127 63.64	754 72.22	252 59.57	655 53.08	577.8 52.8
Attn. Seek	45 4.50	89 9.29	50 26.60	12 1.36	41 2.60	73 4.12	61 5.84	37 8.75	57 4.62	51.7 7.5
Total Within Families	998 38.39	958 43.35	188 32.64	881 23.65	1573 47.99	1771 45.34	1044 44.60	423 37.80	1234 52.31	
Total Across Families	11.0	10.6	2.1	9.7	17.3	19.5	11.5	4.7	13.6	

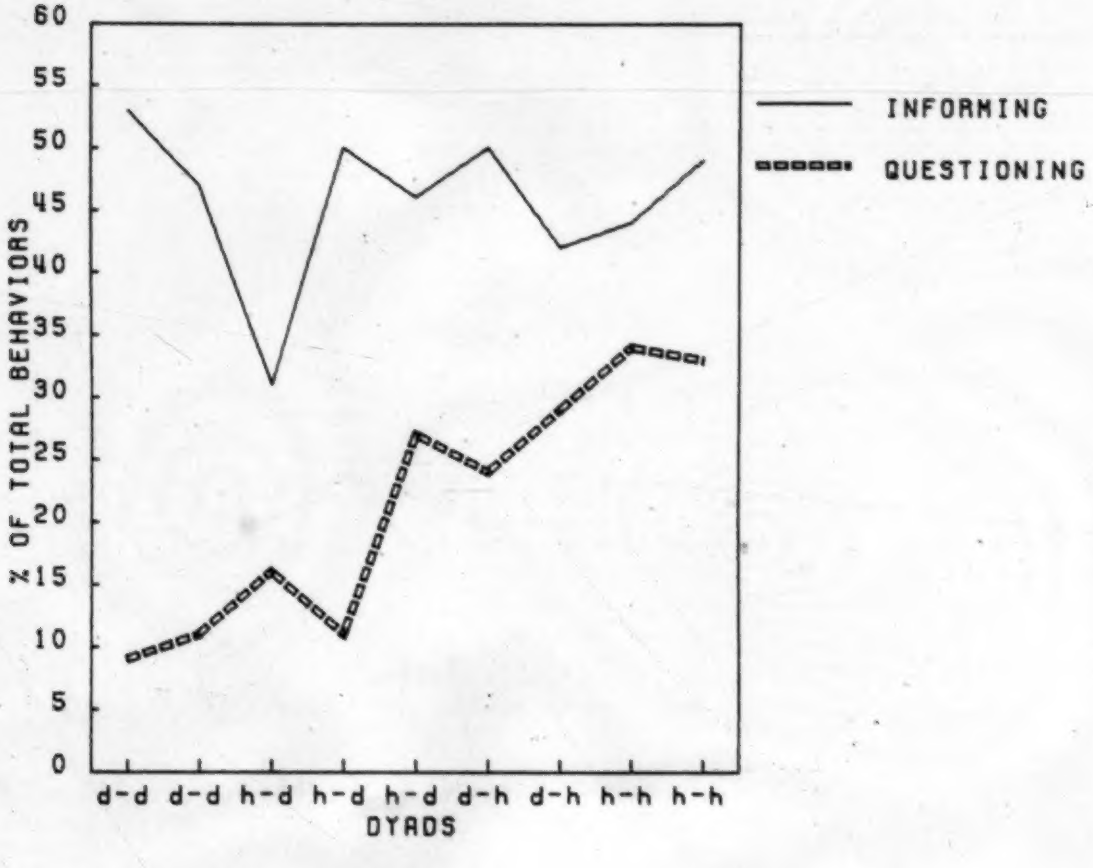
Combined behaviors across families indicate that mothers, as a group, spent 45.7 percent (range 31.2% - 52.5%) of their interacting time labelling and giving general information to the child about the environment, objects, toys and himself. All families except one were relatively consistent in this area scoring within five percentage points of the mean. Family three scored over 16 percentage points lower than the mean for this behaviour.

The next highest occurring behaviour across all mothers was questioning, with an overall mean percentage of 21.6 percent (range 8.9% - 33.8%). While, as a group, all mothers used questioning frequently, relative to their other interactions, mothers of deaf children, with the exception of the 'oral' mother, tended to have lower overall frequencies of questioning behaviour compared to mothers with hearing children. Figure 5 graphically presents mother's informing and questioning behaviors for each family in the study.

The third highest interactive behavior across all mothers was directing, constituting an overall mean percentage of 12.4 percent (range 4.4% - 26.4%) of the mothers' behaviors. All mothers used directing relatively frequently as well, with the mothers of deaf children tending to use it more often compared to the entire group. The remaining overall mother's behaviors were divided, in decending order, into positive expressive, attention seeking, stimulation, negative expressive, demonstration and

FIGURE 5

MOTHER'S INFORMING AND QUESTIONING



expansion .

Tables 13 and 14 presents the frequencies and percentages of behaviors within and across all mothers. If all mothers interacted the same amount with their children, they should contribute 11.1 percent (100/9) of the total communicative events across all mothers. However, as indicated in Table 13, total percentages across mothers ranged from 2.9 percent to 21.8 percent. Hearing mothers with hearing children had fewer overall interactions with their children than deaf mothers had with their children. Hearing mothers with deaf children had a relatively high number of interactions with their children with the exception of family three, where mother's behaviors accounted for only 2.9 percent of the overall total. Hearing mothers' behaviors tended to be much more clustered, with five behaviors accounting for less than one percent of the total in one family and four behaviors accounting for less than one percent in the other family.

All hearing mothers, regardless of the hearing status of their children, tended to have low frequencies of behavior in the categories of demonstration, stimulation, and expansion. Deaf mothers scored relatively high in demonstration and stimulation and also, as a group, showed much higher frequencies of attention seeking. Figures 6 and 7 graphically present the clusters of mother's behaviors that tended to vary across families and which are discussed above.

FIGURE 6

MOTHER'S DEMONSTRATION AND EXPANSION

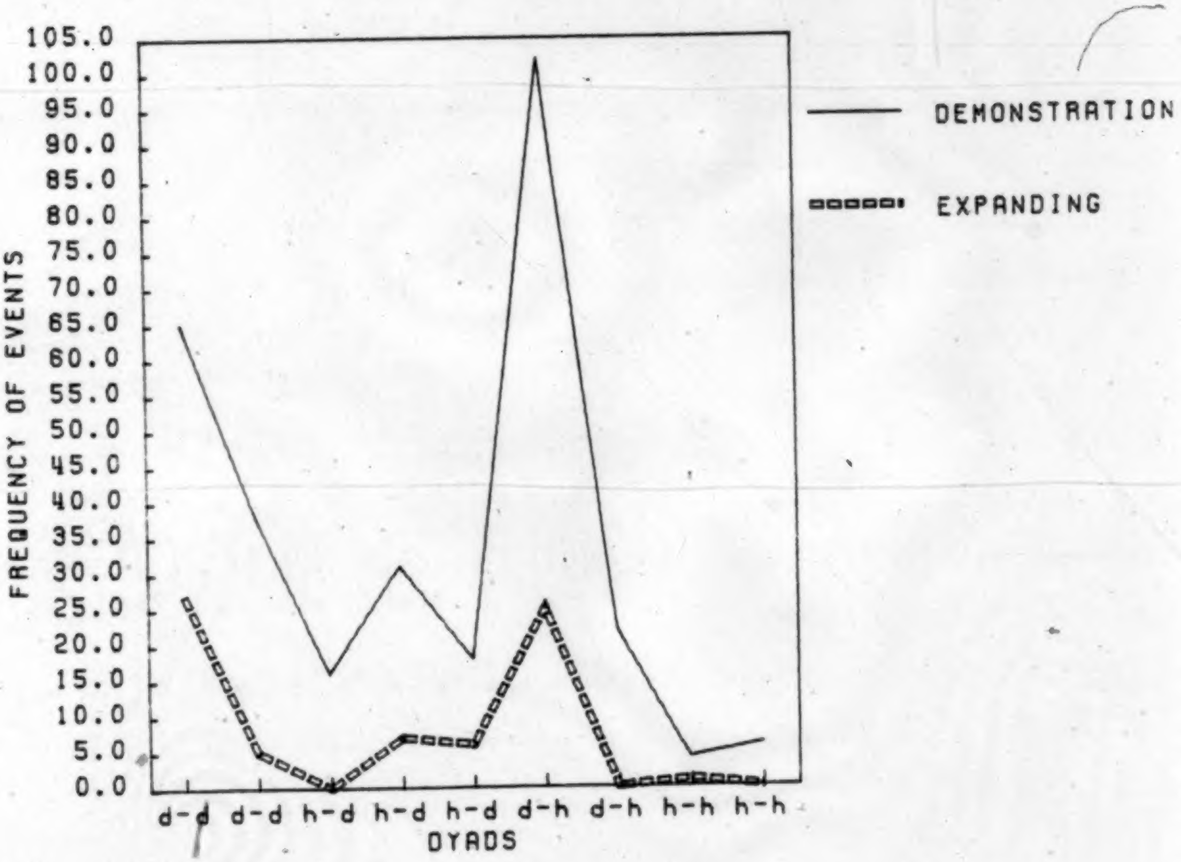
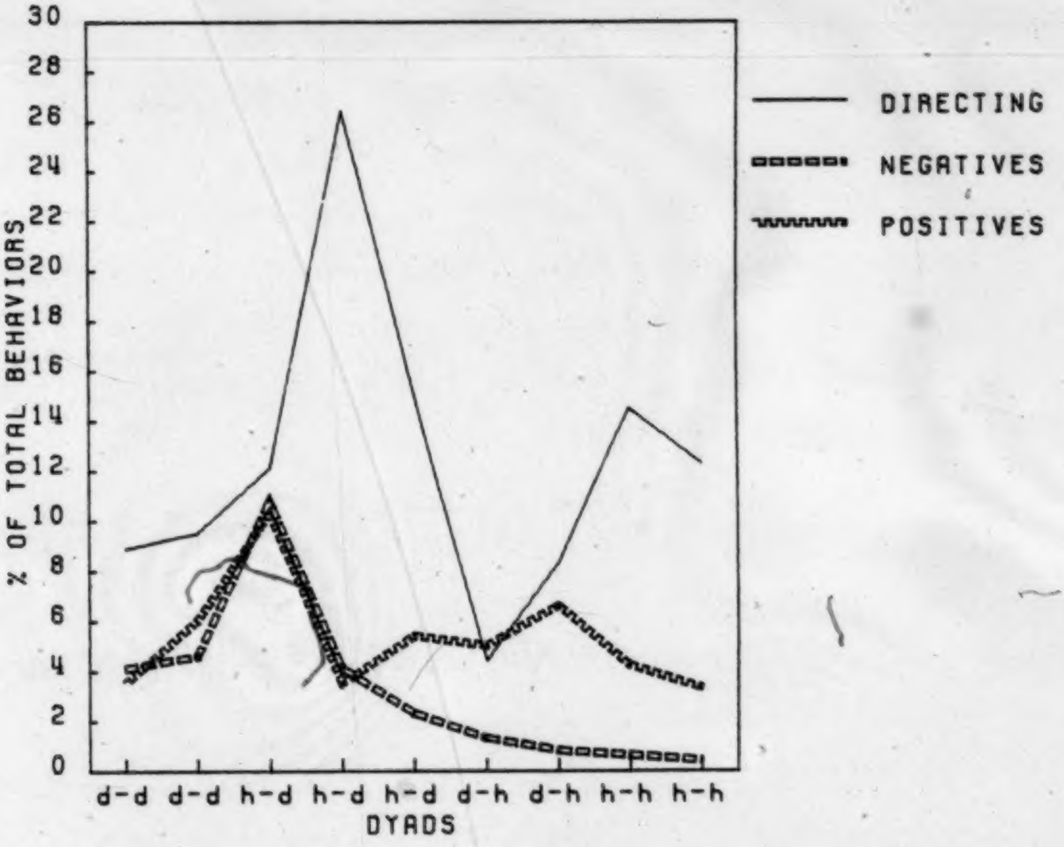


FIGURE 7

MOTHER'S DIRECTING, NEGATIVES AND POSITIVES



(ii) Children's Behaviors

Combined behaviors across families indicated that children's play time ranged from 35.6 percent to 73.6 percent of total observation time, with an overall mean of 52.4 percent. Play tended to be more continuous than the other, more communicative, behaviors and hence is described in terms of time rather than events. Interaction between mother and child often occurred simultaneously with play, as did periods of no communication and play. Table 12 presents each child's mean play time across all observations.

In terms of communication events, children, as a group, spent 52.8 percent (range 13.4% - 66.7%) of their interaction time informing and generally conveying information about their environment and themselves. Two major deviations from the mean were the deaf children with hearing parents using total communication. These children used the inform mode least of all the children and their total number of inform events combined, was far less than any other child observed.

Other communication tended to be more scattered across families in terms of relative occurrence. Responding to directions was the second highest occurring behavior across all children, with a mean percentage of occurrence of 14.9 percent. However, the range of number of events was quite large, ranging from 24 to 569 and accounting for 12.7 percent to 64.6 percent of the total child's communicative behaviors, respectively. Responding to directions accounted for a higher percentage of events for children with hearing mothers than those with deaf mothers. This is a relative proportion and does not reflect contingencies which are discussed in a later section.

The remaining overall children's behaviors were divided, in descending order, into questioning, attention seeking, positive expressive, imitating and negative expressive. Table 14 presents the frequencies and percentages of behaviors within and across all children. If children interacted the same amount with their mothers, they should contribute 11.1 percent (100/9) of the total communicative events across all children. However, as indicated in Table 14, total percentages across children ranged from 2.1 percent to 19.5 percent. Two deaf children and one hearing child, all with hearing mothers, had the fewest overall interactions of the group. Hearing children, overall, had a relatively high number of interactions with their mothers, as did the one 'oral' deaf child.

In summary, across all families, children accounted for 40.1 percent of the interaction between them and their mothers. They spent an average of 52.4 percent of their total time playing, part of which was sometimes spent simultaneously interacting with mother. Children tended to have fewer consistent behaviors within groups, and across groups, than was found for mothers. This may be a function of intervening factors such as age, sex and developmental level, points which are discussed in Chapter 5. Deaf children of hearing mothers contributed least of all to the total reciprocal interaction with their mothers (see Figure 4). Children of hearing mothers, regardless of their own hearing status, tended to cluster their behaviors more, with two and three behaviors accounting for close to 90 percent of their total interactions. Figures 8 and 9 graphically present the clusters of child behaviors that tended to vary across families and which are discussed above.

Correlations

Each dyad was observed for thirty twenty-minute observation sessions and frequency counts of each mother and child behavior, for each of these sessions, were tabulated. *Pearson Product Moment Correlations* were then calculated across mother and child behaviors for each dyad and within mother and child behaviors for each member of the dyad. Tables 24 to 62 in Appendix G, indicate intercorrelations and cross correlations between mother and child for each single family in the study and for each respective group as described earlier. All correlations above .30 are indicated. Group correlations were calculated by converting the respective family correlations to Fisher z scores, finding the mean, and converting back to correlations. Only correlations that were above .30 for both families in a group were tabulated. The results are described below in terms of each individual behavior as an intercorrelation with other behaviours of that person, and as a cross correlation with the other member of the dyad. While all

FIGURE 8

CHILDREN'S INFORMING AND QUESTIONING

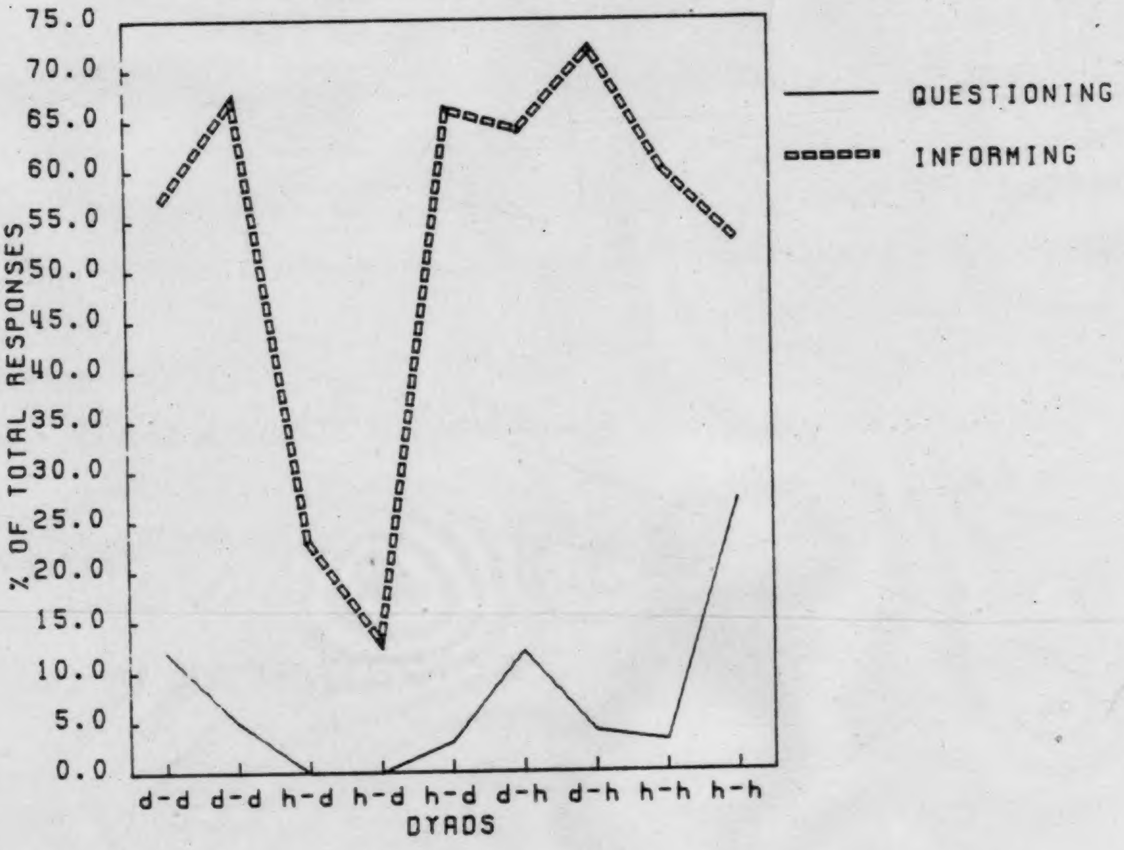
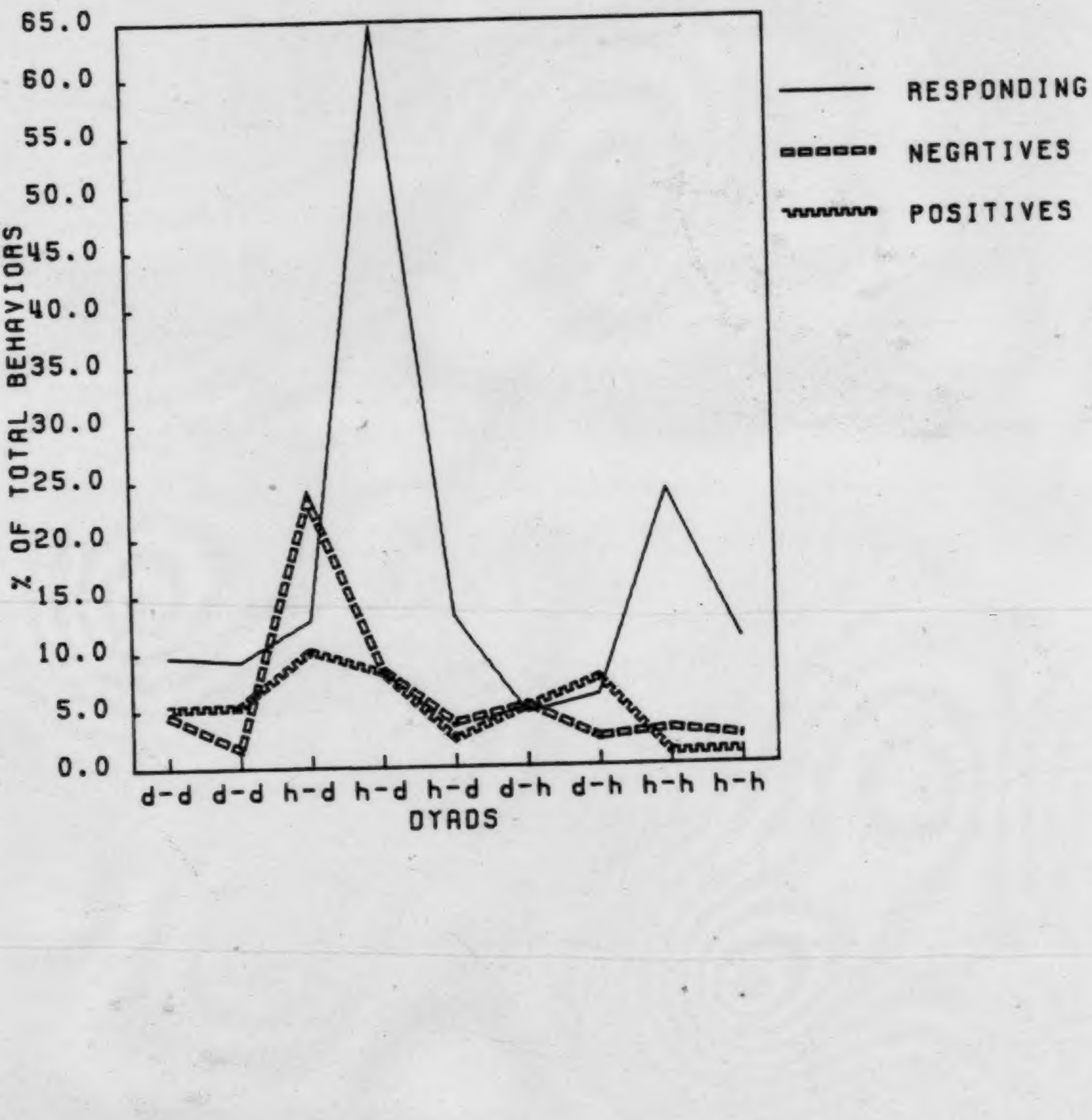


FIGURE 9

CHILDREN'S RESPONDING, NEGATIVES AND POSITIVES



correlations above .30 are presented in Appendix G, Tables 15, 16, and 17 present all correlations above .50 for each family in the study in order to indicate the strongest relationships between the various behaviors.

(i) Positive Behaviors

Mother's positive behaviors of smiling, kissing, cuddling, praise and general encouragement were correlated above .50 with child positive behaviors in five of the nine families while three of these correlations were above the .70 level (Table 15). These relationships were expected and are consistent with the earlier work of Clarke-Stewart (1973). Other cross correlations above the .50 level occurred in less than half of the dyads in the sample and are outlined in Table 15.

Intercorrelations between mother's behaviors and between children's behaviors showed little consistency across families and are outlined in Tables 16 and 17.

(ii) Negative Behaviors

Mother's negative expressive behaviors of restraining, physical or verbal punishment and disapproval showed inconsistent cross correlations with the children's behaviors across families. The most marked consistency was that only one correlation with mother's negative behaviors was over .50. While some mothers had correlations between their negative behaviors and their directing and questioning behaviors, neither of these relationships occurred in more than three of the families and only one was above .50 (Table

TABLE 15

CROSS-CORRELATIONS WITHIN DYADS

Fam-ily		r ≥ .70										.50 ≤ r ≤ .70							
1 (D-D)	M	Pos.	Inf.	Dir.	Inf.	XP	Q	Inf.				Q	XP	AS	Q	AS	Stim.		
	C	Pos.	Im.	RSP	Q	Q	Inf.	Inf.				Im.	Im.	Pl.	Q	Inf.	AS		
2 (D-D)	M	Dir.	Inf.									Pos.	Inf.	Q					
	C	RSP	Inf.									Pl.	Pl.	Inf.					
3 (H-D)	M	Dir.										Pos.	Pos.	Q	Neg.				
	C	RSP										Pos.	RSP	Pl.	AS				
4 (H-D)	M	Dem.	Dir.	Inf.								Inf.	XP						
	C	Im.	RSP	RSP								Pos.	Neg.						
5 (H-Do)	M	Inf.	Dir.	Inf.								Dem.	Pos.	Stim.	XP	Dir.			
	C	Im.	RSP	Inf.								Neg.	RSP	Q	Q	Inf.			
6 (D-H)	M	Pos.	Inf.	Dir.	Q							XP	XP	Pos.	Inf.	XP	Inf.		
	C	Pos.	Im.	RSP	Inf.							Im.	RSP	RSP	Q	Q	Inf.		
7 (D-H)	M	Pos.	Dem.	XP	Dir.	Q	Inf.					Inf.	XP	Inf.	Inf.				
	C	Pos.	Im.	Im.	RSP	Inf.	Inf.					Im.	Pl.	Q	AS				
8 (H-H)	M	Dem.	Dir.									Pos.	Inf.	Dir.					
	C	Im.	RSP									Im.	RSP	Pl.					
9 (H-H)	M	Dem.	Dir.	Q	Inf.	Dir.	Q	Q	Inf.	Dir.	Q	Pos.	Stim.	Dem.	Dem.	Inf.	Dir.	Inf.	Dem.
	C	Im.	RSP	RSP	RSP	Pl.	Pl.	Q	Q	Inf.	Inf.	Pos.	Im.	RSP	Pl.	Pl.	Q	Inf.	Inf.

TABLE 16

INTERCORRELATIONS WITHIN DYADS(MOTHER)

Fam-ily		r ≥ .70			.50 ≤ r ≤ .70		
1 (D-D)	M	Q			Inf.	Inf.	Q
	M	Inf.			AS	XP	XP
2 (D-D)	M	Q			Neg.		
	M	Inf.			Dir.		
3 (H-D)	M						
	M						
4 (H-D)	M	Dir.			Pos.	Q	
	M	Inf.			Inf.	XP	
5 (H-Do)	M	Stim.			Pos.		
	M	XP			Dir.		
6 (D-H)	M				Pos.	Dir.	Inf.
	M				Dir.	XP	XP
7 (D-H)	M	Dem.			Dem.	Stim	Q
	M	XP			Inf.	Inf.	Inf.
8 (H-H)	M	Stim.			Pos.	Pos.	Dir.
	M	AS			Dem.	Q	Inf.
9 (H-H)	M	Dir.	Dir.	Q	Dem.		
	M	Q	Inf.	Inf.	Dir.		

TABLE 17

INTERCORRELATIONS WITHIN DYADS(CHILD)

Family		$r \geq .70$				$.50 \leq r \leq .70$		
1 (D-D)	C C	Im. Q	Im. Inf.			Q Inf.		
2 (D-D)	C C							
3 (H-D)	C C					Im. Pl.	Pl. AS	
4 (H-D)	C C							
5 (H-Do)	C C					Im. Inf.	RSP Inf.	
6 (D-H)	C C					Neg. AS		
7 (D-H)	C C					Im. Pl.	Inf. AS	
8 (H-H)	C C					RSP Pl.	Pl. Q	
9 (H-H)	C C	RSP Pl.	RSP Inf.	Pl. Inf.	Neg. AS	RSP Q	Im. Inf.	Q Inf.

16).

Children's negative behaviors also showed little consistency across families in terms of both their cross correlations with mother's behaviors (Table 15) and their relationship to the other children's behaviors (Table 17).

(iii) Demonstration/Imitation Behavior

Mother's demonstrating behaviors correlated over .30 with child's imitating behaviors in six of the nine families. Four of these correlations were above the .70 level (Table 15). The three correlations below .30 occurred in families with deaf children, two with hearing mothers and one with a deaf mother. The highest correlations occurred in families with hearing mothers and hearing children. Other behaviors correlating above .30 with mother's demonstrating occurred much less frequently across families and are presented in Appendix G. In terms of intercorrelations mother's demonstrating behaviors were not consistently correlated with any other mother's behaviors (Table 16).

As noted in the definition of behaviors and supported in the correlations, the reciprocal child's behavior to mother's demonstrating was child imitating. However, along with the cross correlations previously mentioned, the child's imitating behavior correlated above .30 with mother informing behavior in six of the nine families. Three of these correlations were above .50 and two above .70 (Table 15). Four occurred in families with deaf mothers, and five with deaf children. Other mother behaviors correlating above

.30 with child imitating were weak and scattered across families (see Appendix G). Children's imitating behaviors correlated with their informing and responding behaviors although only three of these correlations were above .50 (Table 17).

(iv) Directing/Responding Behaviors

Mother's directing behaviors correlated above .70 in all of the families with the child's responding behaviors (Table 15). This was the most consistently occurring, and highest, correlation coefficient across and within families. Mother's directing behaviors correlated with her informing and attention seeking behaviors across most families although most of these correlations were not over a .50 level (Table 16).

Child's responding was the reciprocal to mother's directing as outlined in the behavioral definitions (Appendix B), and as supported by the correlation data in Appendix G. However, along with the cross correlations previously mentioned between child responding and mother directing behaviors, child responding was also correlated above .30 with mother's positive behaviors in seven of the nine families, three of which correlated above .50 (Table 15). Child responding also correlated above .30 with mother's informing in five of the nine families, three correlations being over .50 (Table 15).

In terms of intercorrelations, the child's responding behaviors correlated above .30 with his imitating behavior in five of the nine children. None of these correlations was above .50. Intercorrelations between the child's responding and his other behaviors tended to be below .50 across most children, with the exception of an older hearing child who had three intercorrelating behaviors over .50 and two over .70 (Table 17).

(v) Questioning Behaviors

Mother's questioning behaviors correlated above .30 with child's informing behaviors in seven of the nine families (Appendix G). Five of these correlations were over .50 and two over .70 (Table 15). The weakest correlations between mother questions and child informs occurred within four families with hearing mothers, three of which had deaf children. Mother's questioning and child's imitating behaviors also correlated above .30 in five of the nine families, although only one of these correlations was above the .50 level.

Mother's questioning was intercorrelated, above .30, with her own informing behaviors, in six of the nine families, four of which correlated above .50 and two above .70 (Table 16). The three mothers with no intercorrelations above .30 between their questioning and informing behaviors were the three hearing mothers with deaf children in the study. Other intercorrelations with mother's questioning behaviors were generally weak (<.50) and less consistent across families.

Children's questioning correlated above .50 with mother's informing in four of the nine families (Appendix G). Other correlations between these two behaviors in the five remaining families were below .30. Of the five families with low correlations between these behaviors, four were hearing mothers (three with deaf children and one with a hearing child) and one was a deaf mother with a deaf child. Cross correlations between child's questioning and mothers questioning are discussed in the previous paragraphs. Other cross correlations were scattered across families and are presented in Appendix G.

Children's questioning behaviors intercorrelated above .30 with their own informing behaviors in five of the nine children, with two of these correlations above .50 and one above .70 (Table 17). Other intercorrelations with the child questioning behavior were scattered across families and in most cases were below a .50 level (Appendix G).

(vi) Informing Behaviors

Informing was the highest occurring event in both mothers and children. Mother's informing correlated above .30 with children informing in seven of the nine families. Six of these correlations were above .50 and four were above .70 (Table 15). Both correlations between mother's informing and child's informing, that were below .30, were with hearing mothers, one with a deaf child and one with a hearing child. As discussed earlier, mother's informing also correlated above .50 with children's questioning in five of the nine families. Six of the nine families showed correlations, above .30, between mother's informing and child's imitating, four of these correlations being above .50 and two above .70 (Table 15). The three families showing no correlations above .30 between mother's informing and child's imitating were all hearing mothers, one with a deaf child. Four of the five hearing mothers in the study showed correlations above .30 between informing and child's responding to directions. Three of these correlations were above .50 (Table 15). Other correlations were scattered across families and are presented in the individual family correlation tables.

Six of the nine mothers showed correlations above .30 between their informing behaviors and their directing behaviors. Three of these correlations were above .50 (Table 16). Five mothers also showed correlations above .30 between their questioning and their informing behaviors, with three of these correlations being above .50 and two above .70 (Table 16). Four mothers had intercorrelations above .30 between their positive and informing behaviors, although only one of these correlations was above .50 (Table 16).

As discussed in the previous paragraphs, children's informing correlated above .30 with mother's informing in seven of the nine families, and with mother's questioning in seven of the nine families as well. Children's informing also correlated above .30 with mother's directing behaviours in five of the nine families. All families with deaf mothers showed correlations above .50 between children's informing and both mother's questioning and informing behaviors (Table 15). Hearing families with deaf children showed much lower cross correlations between these behaviors.

Five children showed intercorrelations, above .30, between their informing and imitating behaviors, three of which were above .50 (Table 17). Five of the nine children also had intercorrelations above .30 between their informing and questioning behaviors (Appendix G).

(vii) Attention Seeking

Mother's attention seeking behaviors did not correlate above .30 with any of the child's behaviors in five of the nine families. In the remaining four families, mother's attention seeking correlated above .30 with child's imitating in three cases (Appendix G). Mother's attention seeking behavior did not correlate above .50 with any of her other behaviors, except stimulation in one family. However, attention seeking by mothers did correlate over .30 with directing in five of the mothers observed (Appendix G).

Children's attention seeking did not correlate above .30 with any of the mother's behaviors in five of the nine families. In three of the remaining children, their attention seeking correlated above .30 with mother's negative behaviour, once with a negative value and twice with a positive value. Other correlations between child's attention seeking and mother's behaviors over a .50 value were inconsistent across families (Table 15).

Child's attention seeking and informing were intercorrelated above .30 in four of the children observed, one of these correlations being over .70 (Table 17). Other intercorrelations were scattered across families and were generally below a .50 level.

(viii) Expansion

Mother's expansion behaviors only correlated above .30 with any of the children's behaviors in four of the nine families. In three cases, all with deaf mothers, expansion correlated above .50 with the child's imitating behaviour. Child's questioning and mother's expansion also correlated above .50 in three of the families observed (Table 15). Of the five families showing no correlations above .30 between children's behaviors and mother's expansion, four were hearing mothers, two of whom had a deaf child.

Intercorrelations between mother's expanding behaviors and her other behaviors were inconsistent across families and generally below .50 (Appendix G).

(ix) Stimulation Behaviors

Mother's stimulation behaviors correlated above .30 with child's informing behaviors in all four families with hearing children. However, none of these correlations was above .50. Other cross correlations between mother's stimulation and children's behaviors were relatively low and scattered across families (Appendix G).

Intercorrelations between mother's other behaviors and stimulation were also low and scattered across families.

Individual and group correlations are presented in Appendix G indicating a rather weak relationship between mother's stimulation and her other behaviors.

Children's play was defined as the reciprocal of mother's stimulation but never correlated over a .50 level in any of the families. In fact children's play and mother's stimulation only correlated above .30 in two of the nine families. Since play was a more continuous behavior than the rest, it has been previously discussed in terms of time spent in that activity rather than in frequency of events and their correlations. Tables 15, 16, and 17 present the highest (>.50) cross and intercorrelations within dyads while all correlations above .30 are presented in Appendix G.

(x) Group Correlations

Families were combined into five groups as described at the beginning of this Appendix. Group correlations were considered only if both families in a group correlated above .30 on a particular behavior or combination of behaviors. Due to the small sample size of this study, these correlations were then converted to Fisher z scores , meaned and converted back to a group correlation. The advantage of this transformation is that the sampling distribution for Fisher's z is for all practical purposes independent of the population value of the correlation coefficient and is approximately normal, in essence correcting for skewness in these results. Group correlations are presented in Appendix

G.

All five groups of mother-child dyads had correlations above .70 betwen mother's directing and children's responding. Mother's demonstration and child's imitation correlated above .50 in groups four and five, both groups with hearing children. Other groups showed no correlation above .30 between these behaviors. Groups one and four, all with deaf mothers, showed relatively high correlations between mother questions and child informing. Both groups two and five with hearing mothers showed no correlations above .30 between mother questioning and child informing, while Group three, a single family 'group' had a correlation of .43 between these behaviors.

The reciprocal behaviors, child questioning and mother informing only correlated above .30 in Group four, a group with deaf mothers and hearing children. However, informing by mother correlated above .70 with informing by child in both Groups one and four, with deaf mothers, as well as Group three with a hearing mother and deaf child. Groups two and five, with hearing mothers, had no correlations above .30 between these behaviors.

Groups one, three and four also had correlations above .50 between mother positive and child positive behaviors. Deaf mothers in Groups one and four had correlations between these behaviors of .64 and .92 respectively while the hearing mother with a deaf child in group 3 had a correlation of .50. Groups two and five, with hearing mothers, had no correlations above .30 between these behaviors.

Mother's informing and child's imitating correlated above .50 within Groups one, four and three as well. Again, no correlation above .30 was noted between these behaviors in Groups two and five. All other correlations between mother and child behaviors, over .50, were confined within groups and are presented in Appendix G.

Overall, Group four, deaf mothers with hearing children, had nine behaviors between mother and child that correlated above .50. Group one, deaf mothers with deaf children, and Group five, hearing mothers with hearing children, both had six behaviors between mother and child that correlated above .50. Group three, a hearing mother with an oral deaf child, had seven behaviors between mother and child that correlated above .50. However, this was the only single family group and as such was not affected by any type of averaging. Group two, hearing mothers with deaf children using total communication, had only one behavior between mother and child that correlated above a .50 level.

Intercorrelations between mother behaviors were not consistant across groups with the majority being below a .50 level. Groups one, four and five had correlations above .30 between mother's questioning and informing behaviors. Mothers with no correlations above .30 between these behaviors were the hearing mothers of deaf children. Two groups of hearing mothers, Group two and Group five, also had correlations above .50 between mother's directing and informing behaviors. The same two groups of mothers had correlations above .30 between their directing and their positive behaviors. Other intercorrelations between mother's behaviors were mixed within groups and are presented in Appendix G.

Intercorrelations among children's behaviors within groups were relatively low and inconsistant. This may reflect an inconsistency of children within the groups as well as other factors such as age, sex and mother's behaviors which are discussed in the next chapter. Intercorrelations between childrens behaviors in groups are presented in Appendix G.

Lag Sequential Analysis

A lag sequential analysis of contingency was done on all of the observation data collected. A computer program, designed to identify contingency relationships in a sequence of observed behaviors (Sackett, Halm, Crowley, and Henkins, 1979), was modified to accept data from the present study.

Each mother's behaviors were coded as a criterion with each child's behavior being measured, as it followed the criterion behavior at event lag one. This was run for every family, producing nine event lag tables per family using mother's behaviors as the criterion. The same process was followed using children's behaviors as the criterion, and mother's behaviors, measured as they followed the criterion, at event lag one. Tables 63 to 80 in Appendix H present all event lags for all families as described above. As with all research of this type, the amount of data is staggering. In order to interpret the lag data output the author relied on four major sources of insight into meaningful relationships to be reviewed: (1) present literature in the field; (2) correlation relationships between behaviors; (3) visual scanning of the lag data and (4) the observer's (who worked with the families) insights into behavior contingencies or the lack thereof, within the families. Appendix H presents all lag one event analysis results for each family which are discussed below. Tables 18 and 19 present maternal and child behaviors and the percentages of these behaviors which were followed, at event lag one, by behaviors of the other member of the dyad. Figures 10, 11, 12, and 13 graphically present behaviors responded to by each member of the dyad, as well as the response rates of each member of the dyad, for all families in the study.

(i) Questioning Behaviors

Questioning accounted for an overall mean of 21.6 percent of mother's behaviors with a range of 8.4 - 33.7 percent across families. Children's questions accounted for 7.3 percent of their total behaviors overall with a range across families of 0 - 27.3 percent.

Children's communicative behaviors directly followed (event lag one) mother's questions at an overall rate of 66.7 percent of the time, with an across family range of 13 - 86 percent. Two deaf children of hearing mothers responded

TABLE 18

MATERNAL BEHAVIORS FOLLOWED BY CHILD BEHAVIORS AT LAG ONE EVENT LEVEL (%)

	FAMILY									
MOTHER BEHAVIORS	1 (D-D)	2 (D-D)	3 (H-D)	4 (H-D)	5 (H-Do)	6 (D-H)	7 (D-H)	8 (H-H)	9 (H-H)	$\bar{x}$ RESP. ACROSS FAMILIES
Exp. Pos.	68	57	23	8	48	53	60	14	32	40.3
Exp. Neg.	26	40	19	8	40	39	64	0	40	30.7
Demonstr.	77	66	31	100+	100+	72	59	75	100	75.6
Direct	84	80	49	76	87	92	90	100+	100+	84.2
Stimulate	23	19	26	33	67	19	17	7	11	24.7
Question	80	83	13	22	71	86	85	47	68	66.7
Inform	47	47	13	9	57	52	59	13	46	38.1
Attn. Seek	45	48	27	8	19	53	52	00	25	30.4
Expand	63	40	00	14	33	40	00	00	00	21.1
$\bar{x}$ Resp. Within Fams.	57.0	53.3	22.3	30.9	58.0	56.2	54.0	28.4	46.9	

TABLE 19

CHILD BEHAVIORS FOLLOWED BY MATERNAL BEHAVIORS AT LAG ONE EVENT LEVEL (%)

	FAMILY									
CHILD BEHAVIORS	1 (D-D)	2 (D-D)	3 (H-D)	4 (H-D)	5 (H-Do)	6 D-H)	7 (D-H)	8 (H-H)	9 (H-H)	$\bar{x}$ RESP. ACROSS FAMILIES
Exp. Pos.	73	61	74	74	57	68	62	75	64	67.6
Exp. Neg.	80	100	52	51	66	49	96	46	57	66.3
Imitate	72	61	29	65	71	56	22	67	80	58.0
Respond	55	40	63	88	59	59	66	50	43	58.1
Play	39	28	12	69	42	40	30	28	39	36.3
Question	97	93	0	100	88	97	95	62	70	78.0
Inform	88	75	45	94	67	81	80	55	49	70.4
Attn. Seek	87	62	50	75	49	74	87	46	33	62.6
$\bar{x}$ Resp. Within Fams.	73.9	65.0	40.6	77.0	62.4	66.0	67.3	53.6	54.4	

FIGURE 10

BEHAVIORS RESPONDED TO BY MOTHERS AT LAG ONE EVENT LEVEL

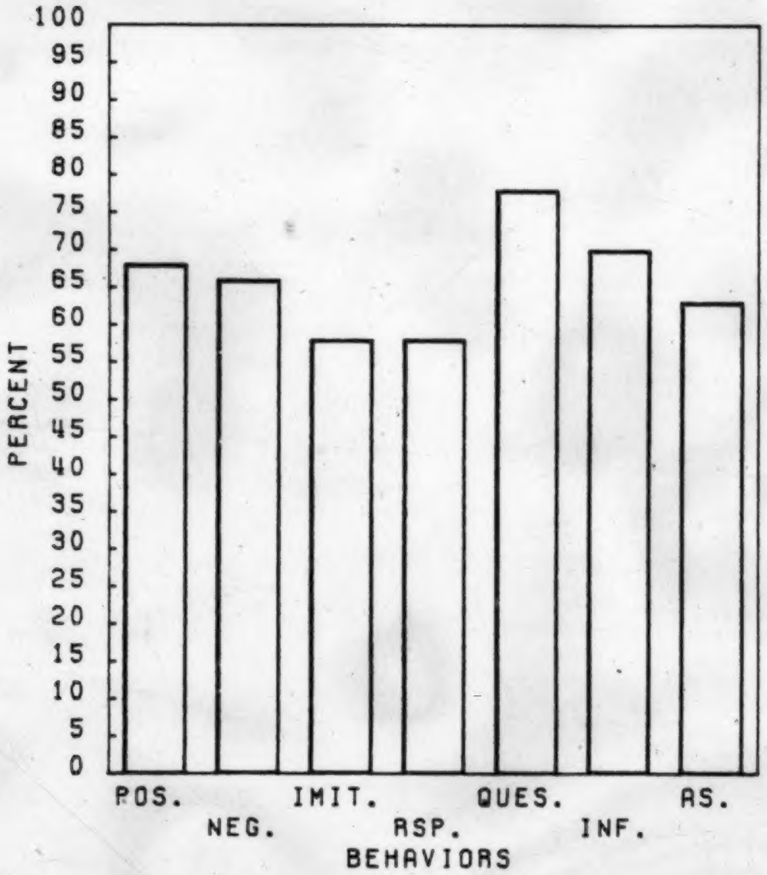


FIGURE 11

MOTHER'S RESPONSE RATES AT LAG ONE EVENT LEVEL

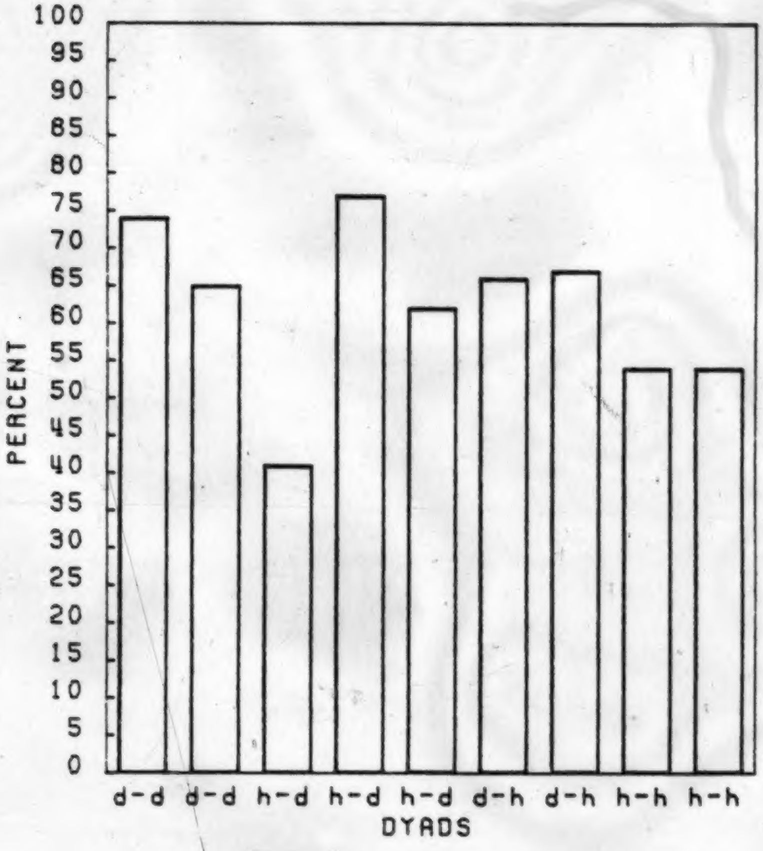


FIGURE 12

BEHAVIORS RESPONDED TO BY CHILDREN AT LAG ONE EVENT LEVEL

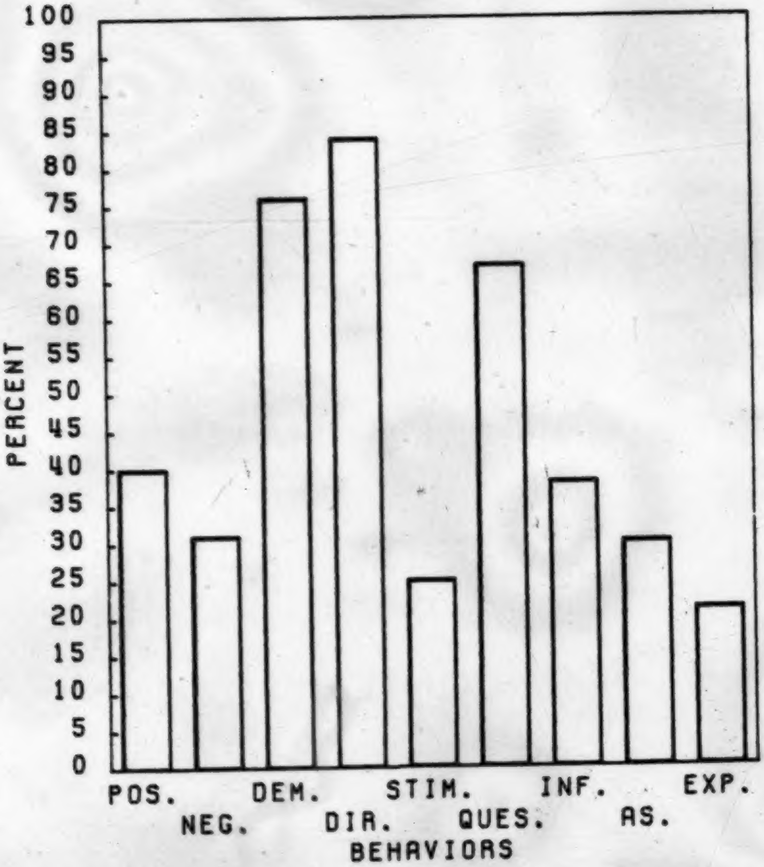
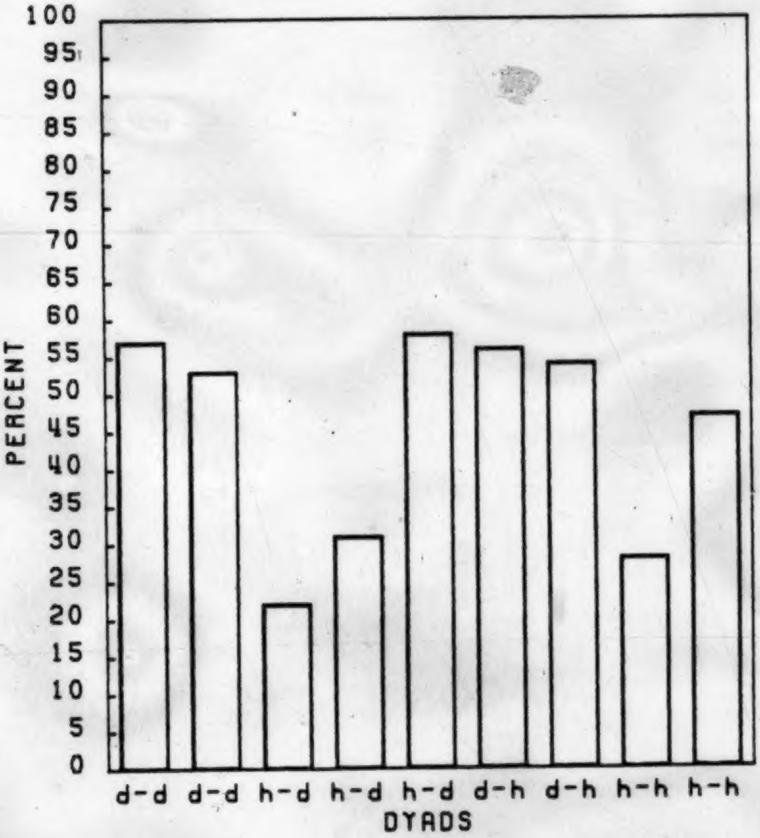


FIGURE 13

CHILDREN'S RESPONSE RATES AT LAG ONE EVENT LEVEL



to their mother's questions less than twenty-five percent of the time. Children of deaf mothers responded more to their mother's questions than any other children, all having response rates over eighty percent.

When children did respond to their mother's questions their highest responding behavior, at event lag one, was informing. This occurred an overall mean of 87.4 percent of the total responses (range 62.5% - 96.9%). Eight of the nine children used informing in over eighty percent of their responses to mother's questions. The other child, who was deaf with a hearing mother, responded very little to mother's questions and when he did used relatively more negative and attention seeking behaviors than the other children.

Other children's behaviors directly following mother's questions were low in frequency and scattered across the families. Comparisons within and across families and behaviors are presented in Tables 18 and 19, and also in the individual family tables in Appendix H.

As a group, mothers responded more to their children's questions than the children did to mother's questions. Overall, mother's communication behaviors directly followed children's questions a mean of 78 percent of the time (range 62% to 100%). Two children, both deaf with hearing parents, were anomolous in terms of the frequency of their questioning behavior. One child asked no questions and hence his mother's response rate was not considered in calculating the overall mean response rate, while the second child asked only one question and her mother responded, at lag one event, by informing, providing a response rate of 100 percent. The lack of use of questioning by these children is discussed in Chapter Four.

The most frequently occurring mother behavior directly after children's questioning was informing. This occurred an overall mean of 84.1 percent of mother's responses (range 75% - 100%). Many mothers also questioned directly after the children questioned. This occurred an overall mean of 10.2 percent of the responses (range 0% - 25%). Other mother behaviors directly following children's questions were scattered across families and relatively low in frequency.

Overall, deaf mothers, regardless of the hearing status of their children, responded communicatively to their children's questions over ninety percent of the time. While informing accounted for most mother behaviors after children's questioning, deaf mothers were the only ones to use demonstration and expanding behaviors after their children's questions. Comparision within and across families and behaviors are presented in Tables 18 and 19, and also in individual family tables in Appendix H.

(ii) Direction and Response Behaviors

Behavioral definitions of these categories indicate that responses can only follow directions. However, they may be followed by further directions. Responses are defined as child behaviors only, while directions are defined as strictly maternal behaviors.

Correlations indicate that all families showed relatively high relationships between mother directing and child responding. Overall, directing accounted for 12.4 percent of mother's behaviors (range 4.4% - 26.4%) while responding to mother's directions accounted for 17.2 percent of the overall child's behaviors (range 4.6% - 64.6%).

Lag sequential analysis of these behaviors indicate that overall, children's communication behaviors follow mother's directions (at lag one event) an overall mean of 84.2 percent of the time (range 49% - 100%). Two deaf children of hearing mothers had the lowest proportions of communicative behaviors directly after mother gave directions, while hearing children of hearing mothers had the highest proportion of responses to this behavior.

Children's responding behaviors accounted for an overall mean of 87.3 percent of their total communicative behaviors following mother's directions with an across family range of 66 - 96.2 percent. Children of deaf mothers used more informing behaviors than other children, after their mothers gave directions. Other children's behaviors following mother's directions were scattered across families and were relatively low in frequency.

Mother behaviors directly following children's response behaviors were much more varied and also less frequent. Mother's communicative behaviors directly followed (at event lag one) children's responding behaviors an overall rate of

58.1 percent of the time with an across family range of 40 - 88 percent. Deaf mothers with hearing children and hearing mothers with deaf children all responded, above the overall mean level, directly after their children's response behaviors.

When mothers did communicate directly after their children's response behaviors, the most frequently occurring behavior overall was informing. This occurred an overall mean of 42.6 percent of the total mother's responses (range 6.7% - 58.8%). Two hearing mothers of deaf children used informing less than any other mothers directly after their children's response behaviors. Mother's directing was the second highest occurring behavior overall, after the child responded. This occurred a mean of 18.3 percent of the total mother responses (range 2.4% - 33.3%). All mothers with deaf children used directing, following children's response behavior, more than the overall mean rate, while mothers of hearing children responded with further directions, less than the overall mean rate. Deaf mothers with hearing children and hearing mothers with deaf children used positive behaviors more frequently than the other mothers directly after their children's response behaviors. Other mother behaviors directly following children's responses were scattered across families and relatively low in frequency. Comparisons within and across families and behaviours are presented in Tables 18 and 19, and the individual family tables in Appendix H.

(iii) Demonstration and Imitation Behaviors

Demonstration behaviors are defined as strictly maternal, while imitation is strictly a child's behavior. Mothers in the study used demonstration a mean of 2.4 percent of their total behaviors (range 0.5% to 4.8%), while children used imitation a mean of 4.6 percent of their total behaviors (range 0.4% - 9.5%).

Mother's demonstration behaviors were followed (lag one event) by children's imitations a mean of 52 percent of the time over all families (range 31% - 83%). Children's informing followed mother's demonstrating a mean of 22 percent overall, with a range of 0 - 56 percent across families. Other children's behaviors followed mother's demonstration less than ten percent of the time and are outlined in Appendix H. Children responded to mother's demonstrations a mean of 75.6 percent of the time at event lag one; the remainder of the time there was either no communication between mother and child and/or mother's demonstrations were followed by further mother behaviors.

Imitations and informing behaviors by the children accounted for 95 percent of their total responses to mother's demonstration behaviors at event lag one. Deaf mothers demonstrated more than hearing mothers, while the hearing mothers of hearing children were the lowest users of this behavior. While children, overall, responded a mean of 75.6 percent of the time to mother's demonstrations, two children responded more than 10 percentage points below this level. One child, who was deaf with a hearing mother, responded only 31 percent of the time to mother's demonstrations, while the other was a hearing child with a deaf mother who responded to 59 percent of her mother's demonstrations.

Overall, mothers responded to their child's imitations a mean of 58 percent of the time. Forty-two percent of the time there was no communication following the child's imitation behavior and/or it was followed by further child behaviors. The range of response to children's imitation behaviors was from 22 - 80 percent of the time. The children who responded least to their mothers in the previous section, were the children who were responded to least by their mothers after imitating. This was a hearing child of a deaf mother and a deaf child of a hearing mother. The only other mother who responded to her child below the mean level was also a deaf mother with a hearing child.

Overall, of the responses made to children's imitating, forty-five percent of them (range 0% - 75%) were by informing. The extremities of this range were caused by hearing mothers of hearing children, who, due to the low use of imitation by their children, tended to skew the responding pattern somewhat as can be seen in Table 14. Other responses to children's imitating were varied across families and are presented in Tables 18 and 19 as well as the individual family tables in Appendix H.

(iv) Informing Behaviors

Informing accounted for the major portion of both mother and child behaviors. Mothers used informing a mean of 47.7 percent of their total behaviors (range 31% - 52%) while children used informing a mean of 57.5 percent of their total behaviors (range 13.4% - 71.3%).

Children responded to mother's informing, at event lag one, a mean of thirty eight percent of the time (range 13% - 59%). At event lag one, the lowest responding children were two deaf children of hearing mothers and one hearing child of a hearing mother. These children all responded to their mothers less than fifteen percent of the time.

When children did respond to their mother's informing, their highest responding behavior, at event lag one, was also informing which occurred a mean of 59 percent.of the total responses (range 33% - 79%). Two deaf children of hearing mothers were the lowest users of informing behavior after their mother's informing behavior. Both of these children had relatively high rates of negative behavior after mother's informing and had relatively high rates of positive and attention seeking behaviors respectively.

Other children's behaviors which occurred relatively frequently after mother informing, were questioning ($\overline{x}$=11%) and imitating ($\overline{x}$=8%). Children who often used questioning were spread across groups, while children who imitated most frequently, directly after mother informed, were two deaf children of hearing mothers. However, as a group, children of deaf mothers, regardless of their own hearing status, used imitation as their third most frequently occurring behavior after mother's informing.

Mother's behaviours directly followed children's informing a mean of 70 percent of the time (range 45% - 94%), at event lag one. The lowest responding mothers were all hearing mothers, two with hearing children and one with a deaf child. These mothers did not have any communicative behavior, following their child's informing, over forty percent of the time.

When mothers did respond directly after their child informed, the highest communicative response, across all families was also to inform, which occurred a mean of 49.6 percent of the total responses (range 37% - 63%). The same mothers who responded least to their children, also used informing less than the other mothers, relative to their total responses.

Across all families, questioning was the second most frequently occurring event, directly after child's informing, occurring a mean of 24.3 percent of the total responses (range 12% - 42%). Hearing mothers with hearing children questioned more, relative to their total responses, than the other mothers. These mothers also used directing behaviors more after their children informed.

Other mother behaviors occurring after the children informed were scattered across families. Tables 63 to 80 in Appendix H present the event lags for each individual family, using each mother and child behavior as criterion.

Tables 18 and 19 present more concise event lag data for comparisons across families and behaviors.

(v) Expansion Behaviors

Expansion was, by definition, a maternal behavior only, and accounted for an overall mean of less than one percent (0.5) of total mother's behaviors (range 0% - 1.2%). Only two mothers, both deaf, used expanding behaviors more than one percent of their respective total behaviors. Three mothers never used expansion at all and one mother used it once, but no child behaviour followed at event lag one.

In the five remaining families, children's communicative behaviors directly followed (event lag one) mother's expansion a mean of 38 percent of the time (range 14% - 63%). The most frequently occurring child's behavior directly after mother's expansion was informing, which occurred a mean of 78.6 percent of the total responses (range 40% - 100%). Due to the small number of expansions and the small number of responses to this mother behaviour, the other behaviors following expansion at event lag one were varied within families. Comparisons within and across families and behaviors are presented in Tables 18 and 19 and also in individual family tables in Appendix H.

(vi) Attention Seeking Behaviors

Attention seeking accounted for an overall mean of 4.7 percent of mother's behaviors (range 0.3% - 12.5%). Children's attention seeking behaviors accounted for an overall mean of 5.2 percent of their total behaviors (range

1.4% - 26.6%).

Children's communicative behaviors directly followed (event lag one) mother's attention seeking behaviors an overall rate of 30.4 percent of the time (range 0 - 53 percent). All children with hearing mothers, regardless of their own hearing status, responded less than thirty percent of the time directly after their mother's attention seeking. Children with deaf mothers all responded, directly after mother's attention seeking, more than forty-five percent of the time.

When children did respond to their mother's attention seeking (event lag one), their most frequently occurring behavior overall was informing, which occurred a mean of 53 percent of the time (range 0% -100%). Children also used responding behaviors directly after mother's attention seeking behavior an overall mean of 19.7 percent of their total responses (range 0% - 40%). Hearing children with hearing mothers did not use this behavior directly after mother's attention seeking. Since, by definition, children's responding could only follow mother's directions, attention seeking and directing were used simultaneously by the mothers during these occasions. As a group, mothers with deaf children used attention seeking and directing simultaneously, more than mothers with hearing children, and deaf children had more responding behaviors directly after their mother's attention seeking. Other child behaviors directly following mother's attention seeking, were scattered across families and were relatively low in frequency.

Overall, deaf mothers with deaf children used attention seeking more frequently than the other mothers. Children of deaf parents, regardless of their hearing status, responded more frequently (at event lag one) to their mother's attention seeking. Hearing mothers, as a group, used attention seeking less than deaf mothers and their children responded less, at event lag one, to their attention seeking.

As a group and within families, mothers responded more to their children's attention seeking (at event lag one) than the children did to their attention seeking. Overall, mother's behaviors directly followed children's attention seeking behaviors a mean of 62.6 percent of the time (range 33% - 87%). As a group, deaf mothers responded more to their children's attention seeking than hearing mothers. All hearing mothers responded (at event lag one) less than the overall mean response rate, directly after their children used attention seeking behaviors. One exception to this was a hearing mother with a deaf child who responded above the mean response rate to her child's attention seeking.

When mothers did respond directly after their child's attention seeking the most frequently occurring behavior across all mothers was informing. This occurred an overall mean of 46 percent of the time (range 22% - 69%). Informing was the most frequently occurring behavior, after the child was attention seeking, for all deaf mothers and one hearing mother of a deaf child.

Questioning was the second most frequently used behavior overall by mothers, directly after their children were attention seeking. This occurred an overall mean of 29.4 percent of mother's responses (range 4% - 53%). Mothers who used questioning most frequently directly after their children were attention seeking, were mothers of hearing children, regardless of their own hearing status, as well as one mother of an oral deaf child. Other mother behaviors occurring after the child was attention seeking were scattered across families. Comparisons within and across families and behaviors are presented in Tables 18 and 19 and also in individual family tables in Appendix H.

Overall, mothers communicated more directly after their child's attention seeking than the children did after mother's attention seeking. As a group, deaf mothers responded more to their children's attention seeking, and when they did respond they used informing more than other mothers, as the next behavior after child's attention seeking. Mothers of hearing children, regardless of their own hearing status, used questioning more than mothers of deaf children, directly after their child's attention seeking. Hearing mothers used more directing than deaf mothers directly after their children's attention seeking.

(vii) Positive Behaviors

Positive expression accounted for a mean of 4.8 percent of mother's behaviors across all families (range 3.5% -10.3%), while children's positive behaviors accounted for a mean of 4.7 percent of their total behaviors (range 0% - 10.1%).

Children's communicative behaviors directly followed (event lag one) mother's positive behaviors an overall rate of 40.3 percent of the time (range 8% - 68%). Four children, two deaf and two hearing, all of hearing mothers, responded less than thirty-five percent of the time directly after their mothers showed positive expression.

When children did respond to their mother's positive expression, their highest responding behavior, at event lag one, was positive expression, which occurred an overall mean of forty-nine percent of the time (range 5% - 84%). Two hearing children with hearing mothers and one deaf child with a hearing mother responded to mother's positives with their own positives (event lag one) less than thirty percent of the time. These children also had low response rates (at lag one event) overall.

Children also used informing behaviors, directly after mother's positive expression, a mean of 28 percent of their total responses to this maternal behavior (range 8% - 80%). A deaf child with a hearing mother and a hearing child with a deaf mother were the lowest relative users of this behavior directly after mother's positive expression. An 'oral' deaf child with a hearing mother was the highest percentage user of informing directly after mother was positive.

Other children's behaviors directly following mother's positive expression were scattered across families and were relatively low in frequency. One exception to this was a hearing child with a hearing mother, who used questioning as her highest responding behavior directly after mother's positive expression.

Overall, children of hearing mothers, regardless of their own hearing status, responded less to their mother's positive expression than the other children in the study. In responding to mother's positives, children with deaf mothers, regardless of their own hearing status, used more positive behaviors than any other children. Children of hearing mothers, as a group, used more informing behaviors directly after mother's positive behaviors.

As a group, mothers generally responded more to their children's positive expression than the children did to their mother's positive expression. Overall, mother's behaviors directly followed children's positive behavior a mean of 67.6 percent of the time (range 57% - 75%).

The most frequently occurring mother behavior directly after the child's positive expression was not consistent across families, as was the children's behaviors. Five of the six hearing mothers used informing most frequently directly after their child's positive expression. The other hearing mother, along with all four deaf mothers, used positive expression most frequently, directly after their child's positive behaviors.

Over all families, mothers used positive expression a mean of 37.2 percent of their total responses to the child's positive behaviors (range 0% - 61%), and used informing a mean of 33.8 percent of the time after the child was positive (range 14% - 67%). Other mother behaviors occurring after the child was positive were scattered across families. Comparisons within and across families and behaviors are presented in Tables 18 and 19 and also in individual family tables in Appendix H.

Overall, deaf mothers were more positive than hearing mothers when their children were positive. Hearing mothers informed more than deaf mothers directly after their children were positive. Mother's behaviors more frequently followed their children's positive expression than did children's behaviors follow their mother's positive expression.

(viii) Negative Behaviors

Negative expression accounted for a mean of 3.2 percent of mother's behaviors across families (range 0.4% - 10.8%). Children's negative behaviors accounted for a mean of 6.1 percent of their total behaviors (range 2.4% - 23.4%).

Children's communicative behaviors directly followed (event lag one) mother's negative behaviors an overall rate of 30.7 percent of the time (range 0% - 64%). Two deaf children of hearing mothers, as well as a hearing child of a hearing mother, responded least to their mother's negative behaviors at event lag one.

When children did respond to their mother's negative expression, their highest overall responding behavior, at event lag one was informing, which occurred an overall mean of 33.7 percent of the time (range 0% - 70%). Two deaf children with hearing mothers as well as a hearing child with a hearing mother, never used any informing behaviors directly after mother was negative. These are the same children, mentioned above, who had low response rates overall.

Children also used negative behavior, directly after mother's negative behavior, a mean of 26.4 percent of their total responses to this maternal behavior (range 0% - 63%). Hearing children with hearing mothers did not use negative behavior directly after their mother's negative behavior. The highest frequencies of negative behavior after mother's negative expression were with deaf children, one with a deaf mother and one with a hearing mother.

Other children's behaviors directly following mother's negative expression were scattered across families and were relatively low in frequency. One exception to this was responding behavior of the three deaf children of hearing mothers. By definition of responding, this would indicate that mother's negatives and directing occurred simultaneously in these instances. These children responded to their mother's negative directions 13 percent, 19 percent and 67 percent respectively.

Overall, mothers of deaf children were more negative than mothers of hearing children. Deaf children with hearing mothers using total communication, as well as one hearing child of a hearing mother, responded least to their mother's negative expression.

Mothers, as a group and within families, responded more to their children's negative expression than the children did to their negative expression. Overall, mother's behaviors directly followed children's negative behaviors a mean of 66.3 percent of the time (range 46% - 100%). Three of the four mothers with hearing children, as well as two hearing mothers with deaf children responded less to their children's negatives, than the mean overall rate. Three of the four deaf mothers responded to their child's negatives over 80 percent of the time.

The most frequently occurring mother behavior directly after the child's negative expression was informing, which occurred an overall mean of 48 percent of the total responses (range 37% - 67%). Mothers also used questioning relatively frequently after their children were negative. This occurred an overall mean of 17.4 percent of the total responses (range 0% - 39%). The five hearing mothers in the study had the highest frequencies of directing behavior, at lag one event, after their children showed negative expression. Other mother behaviors occurring directly after the child was negative were scattered across families.

Comparisons within and across families and behaviors are presented in Tables 18 and 19 and also in individual family tables in Appendix H.

As a group, deaf mothers responded more to their children's negative behavior than hearing mothers. Mothers of deaf children were the only mothers who responded, at lag one event, to their children's negatives, with positive behavior. Hearing mothers used direction, as a response to children's negatives, more than deaf mothers.

(ix) Stimulation Behaviors

Stimulation, by definition, was strictly a maternal behavior and as a category, was used to determine the extent to which mother introduced the child to toys, materials and objects with which to play. However, unlike most other, more communicative behaviors, play was often continuous over large segments of time and hence more difficult to analyze in terms of contingencies, since this behavior often occurred simultaneously with other behaviors and also followed, at lag one, all mother behaviors to some extent. The resultant implications regarding contingencies are discussed further in this section.

Stimulation accounted for an overall mean of 4.3 percent of total mother's behaviors (range 0.5% - 12.9%). Four hearing mothers, two with deaf children and two with hearing children, used stimulation less than any of the other mothers in the study.

Children's communicative behaviors directly followed (event lag one) mother's stimulation behaviors an overall rate of 24.7 percent of the time (range 7% - 67%). Children's play behaviors, on the other hand, directly followed mother's stimulation an overall mean of 72 percent of the time (range 22% - 93%). The three deaf children with hearing mothers responded to their mother's stimulation, more than the other children, by communicating and, less than any other children, by playing. Although play followed all mother behaviors to some degree, it followed stimulation an overall mean of more than twenty three percent of the time higher than any other behavior. Also, considering that stimulation followed play an overall mean of less than one percent of the time, the direction of contingency between stimulation and play is assumed to be from mother to child.

When children communicated directly after mother's stimulation, their highest responding behavior, at event lag one, was informing, which occurred an overall mean of 62.1 percent of the total communicative responses (range 0% - 100%). Deaf children of hearing mothers responded less than any other children by informing. Hearing children of hearing mothers used informing most of all when they responded communicatively, however, the frequency of their total responses to mother's stimulation was quite low.

Other children's communicative behaviors directly following mother's stimulation were scattered across families and were relatively low in frequency. One exception to this was a deaf child with a hearing mother who used response to direction behavior in 79 percent of her total responses to stimulation. This indicates that mother's use of direction and stimulation, (eg.) "go play with this doll", were often used simultaneously. Comparisons within and across families and behaviors are presented in Tables 18 and 19 and also in individual tables in Appendix H.

Overall, hearing children responded less communicatively to their mother's stimulation. Hearing children and deaf children with deaf mothers responded to their mother's stimulation by playing more than eighty percent of the time. The three deaf children with hearing parents responded to mother's stimulation by playing less than any of the other children.

Maternal Responsiveness

Operational measures of a mother's responsiveness were based on an analysis of contingencies between observed child and maternal behaviors. A number of specific child behaviors which might be expected to elicit maternal responses were selected and modified from the work of Clarke-Stewart (1973). These behaviors and the operational definitions of their relationship to mother's responsiveness are outlined in Chapter III. Each recorded occurrence of each of these child behaviors was considered, and its consequents, at lag one event interval, were examined. Maternal behaviors which were defined responsive and which occurred at a lag one event interval, beyond the criterion child behavior, were scored 1 and those that did not fit the definition of responsiveness were scored zero. Two measures of maternal responsiveness were calculated based upon the proportion of child behaviors to which the mother responded; an overall responsiveness score (the total proportion of responsive maternal behaviors) and the specific responsiveness scores of each child criterion behavior.

Overall, mothers were appropriately responsive to their children a mean of 60.5 percent of the time (range 41.7% - 76.9%). The remaining times, mothers either responded inappropriately to the child's behavior, or not at all, at a lag one event level. As a group, mothers were least responsive to children's positive behaviors, with an overall mean responsive score of 25.1 percent (range 0% - 44.2%). Three hearing mothers, two with deaf children, were less responsive to children's positives than other mothers, all having responsiveness scores of less than ten percent to children's positive expression. Three deaf mothers, one with a hearing child, and one hearing mother with a deaf child, were responsive to their children's positive behaviors more than fifteen percentage points above the overall mean level.

Mothers were responsive to children's negative behavior an overall mean of 62.6 percent of the time (range 44.7% - 100%). Three hearing mothers, two with deaf children, and one deaf mother with a hearing child, responded more than ten percentage points below the overall mean level, to their children's negative behavior. Two mothers responded well above the overall mean level (more than twenty percentage points) to their children's negative behavior. Both of these mothers were deaf, one with a deaf child and one with a hearing child.

Overall, mother's responsiveness to their children's questions was the highest ranking responsive behavior. (Since one child never used any questioning behaviors throughout the study, his mother was unable to show any degree of responsiveness to this behavior and therefore was not considered in the calculation of the overall mean for this behavior). Mothers responded appropriately to their children's questions an overall mean of 86.3 percent of the time (range 61.5% - 100%). Two hearing mothers with hearing children responded more than ten percentage points below the overall mean level, while all other mothers responded above this level.

Mothers appropriately responded to their children's informing behaviors an overall mean of 68.4 percent of the time (range 40.5% - 86.4%). Three hearing mothers, two with hearing children and one with a deaf child, responded appropriately to their children's informing more than ten percentage points below the overall mean response level of the group. Deaf mothers, and one hearing mother of a deaf child, responded appropriately to their children's informing behaviors over seventy percent of the time.

Overall, mothers responded appropriately to their children's attention seeking a mean of 63.6 percent of the time (range 33.3% - 86.9%). Three hearing mothers, one with an 'oral' deaf child, responded more than fifteen percentage points below the overall mean level, to their children's attention seeking. Two deaf mothers responded appropriately to their children's attention seeking more than fifteen percentage points above the overall mean level.

In summary, hearing mothers had fewer appropriate responses to their children's behaviors than deaf mothers. Within the group of hearing mothers, those with hearing children responded appropriately less often, to their children's behaviors overall, than those with deaf children. Deaf mothers, regardless of the hearing status of of their children, had the highest total responsiveness scores in the study. Table 20 presents the responsiveness scores for each mother in the study, while Figure 14 graphically presents these results along with maternal effectiveness.

Maternal Effectiveness

Operational measures of a mother's effectiveness were based on an analysis of contingencies between observed infant and maternal behaviors. For a set of specific maternal behaviors, certain child responses were selected from the work of Clarke-Stewart (1973) that would indicate that the mother's behavior had been effective or appropriate. For example, if the mother directed the child to do something, her behavior was considered effective only if the child carried out the order without any negative behavior. If the child responded but was negative also, the

TABLE 20

MATERNAL RESPONSIVENESS (%)

	FAMILY									
	1 (D-D)	2 (D-D)	3 (H-D)	4 (H-D)	5 (H-Do)	6 (D-H)	7 (D-H)	8 (H-H)	9 (H-H)	$\bar{x}$ % Across Families
Child Positive	44.23	23.52	42.10	9.72	8.10	38.88	37.97	0.00	21.42	25.10
Child Negative	69.56	100.00	47.72	48.00	62.71	44.68	88.00	46.15	56.66	62.60
Child Questions	95.12	93.33	0.00	100.00	85.36	93.62	92.10	61.53	69.73	86.30
Child Informs	85.81	73.08	40.47	86.44	65.38	81.01	79.70	54.76	49.00	68.40
Child Attn. Seeks	84.44	59.55	68.75	75.00	46.34	72.60	86.88	45.94	33.33	63.60
$\bar{x}$ Resp'ness (%)	75.83	69.89	49.76	63.83	53.57	66.16	76.93	41.67	46.02	

TABLE 21

MATERNAL EFFECTIVENESS (%)

	FAMILY									
	1 (D-D)	2 (D-D)	3 (H-D)	4 (H-D)	5 (H-Do)	6 (D-H)	7 (D-H)	8 (H-H)	9 (H-H)	$\bar{x}$ % Across Families
Positive	41.07	42.66	12.50	4.04	2.17	35.51	50.58	3.49	5.40	21.90
Demonstr.	30.76	42.10	31.25	64.51	55.55	49.01	36.36	75.00	83.33	52.00
Direct	65.73	71.66	44.68	73.53	77.82	77.89	59.25	99.00	97.82	74.20
Stimulate	81.96	86.41	72.00	53.48	22.22	93.15	81.13	86.66	88.88	74.00
Question	74.12	81.88	8.19	18.23	63.31	82.27	84.69	45.10	66.75	58.30
Inform	44.28	41.59	7.43	6.36	53.35	47.36	53.49	10.49	42.49	34.10
Attention Seek	40.29	47.63	27.27	8.06	19.44	53.06	52.12	0.00	25.00	30.30
$\bar{x}$ % Effect. Within Families	54.03	59.13	29.04	32.60	42.05	62.60	59.66	45.67	58.52	49.3

maternal behavior was deemed inappropriate and scored zero. A more comprehensive description of each of the mother's behaviors considered and their relationships to maternal effectiveness is presented in Chapter III. Each recorded occurrence of each of these mother behaviors was considered, and its consequents, at lag one event interval, examined. Maternal behaviors which were defined effective were scored one and those that did not fit the definition of effectiveness were scored zero. Two measures of maternal effectiveness were calculated based on the proportion of appropriate child responses to mother's behaviors; an overall effectiveness score (the total proportion of appropriate child responses) and the specific effectiveness scores for each mother criterion behavior.

Overall, mothers were effective in eliciting appropriate responses from their children a mean of 49.3 percent of the time (range 29.0% - 62.6%). The remaining times children either responded inappropriately to mother's behavior or not at all, at a lag one event level.

As a group, mothers were least effective in eliciting children's positive behaviors, with an overall mean effectiveness score of 21.9 percent (range 2.2% - 50. 6%). All five hearing mothers, regardless of the hearing status of their children, had effectiveness scores well below the overall mean level for eliciting positive behaviors. The combined hearing mother's mean effectiveness score for eliciting positive behavior in their children was 5.5

percent compared to a combined deaf mother's mean of 51.5 percent.

Mother's demonstrating behaviors were effective an overall mean of 52 percent of the time (range 30.8% - 83.3%). All deaf mothers, as well as a hearing mother with a deaf child, scored below the overall mean effectiveness level for this behavior. The remaining hearing mothers scored above the overall mean effectiveness level for demonstrating behaviors, while hearing mothers with hearing children had the highest effectiveness scores for this behavior.

Overall, mother's directing behaviors were most effective in eliciting appropriate children's responses. Children responded appropriately to mother's directing an overall mean of 74.2 percent of the time (range 44.7% - 99%). Two mothers, both hearing with hearing children, had effectiveness scores, with this behavior, more than twenty percentage points above the overall mean level. Only one mother, a hearing mother with a deaf child, had an effectiveness score more than ten percentage points below the mean level for this behavior.

Mother's stimulation behaviors were also very effective in eliciting appropriate child responses, with an overall mean of 74 percent (range 22.2% - 93.2%). Unfortunately, these particular figures may be inflated, because children's responses are considered at a lag one event level, and because play was quite often a continuous, overtime behavior, contingency between mother's stimulation and children playing was unable to be determined. However, with this in mind, the three hearing mothers with deaf children had the lowest effectiveness rates in eliciting appropriate children's behaviors to their own stimulating behaviors. All other mothers had effectiveness scores above the overall mean level for this behavior.

Mother's questioning behaviors were effective in eliciting appropriate children's responses an overall mean of 58.3 percent of the time (range 8.2% - 84.7%). Hearing mothers with deaf children were least effective in eliciting appropriate children's responses to this behavior, all three having effectiveness scores more than thirty percentage points below the overall mean level for this behavior. Deaf mothers, regardless of the hearing status of their children, had the highest effectiveness scores for quesitoning behaviors.

Overall, mother's informing behaviors were effective in eliciting appropriate children's responses 34.1 percent of the time (range 6.2% - 53.5%). Three hearing mothers, two with deaf children, were least effective in eliciting appropriate children's responses to their own informing behaviors, all scoring more than twenty percentage points below the overall mean level. Three deaf mothers, as well as one hearing mother with a deaf child had effectiveness scores, to informing behavior, more than ten percentage points above the overall mean level.

Mother's attention seeking behaviors also had relatively low effectiveness in eliciting appropriate responses from their children. The mean overall effectiveness score for mother's attention seeking behavior was 30.3 percent (range 0% - 53.1%). All hearing mothers, regardless of the hearing status of their children, scored below the mean effectiveness level for this behavior, while all deaf mothers scored above this mean effectiveness level.

In summary, hearing mothers with deaf children were less effective in eliciting appropriate responses from their children than any other mothers. Deaf mothers, along with one hearing mother of a hearing child, had the highest overall effectiveness scores. In general, mothers were more responsive to their children's behaviors than they were effective in eliciting their children's appropriate behaviors. Tables 20 and 21 present the effectiveness and responsiveness scores for each family as well as combined scores across families for each behavior considered. Figure 14 graphically presents these results for each family in the study.

Changes Over Time

Overall, mothers decreased their total interactive behaviors over the ten weeks of the study. Figure 15 graphically presents each dyad's total behaviors, as well as combined family behaviors, for each individual observation session; the reciprocal interactive effect that each member of the dyad has on one another is displayed in the degree to

FIGURE 14

MATERNAL RESPONSIVENESS AND EFFECTIVENESS

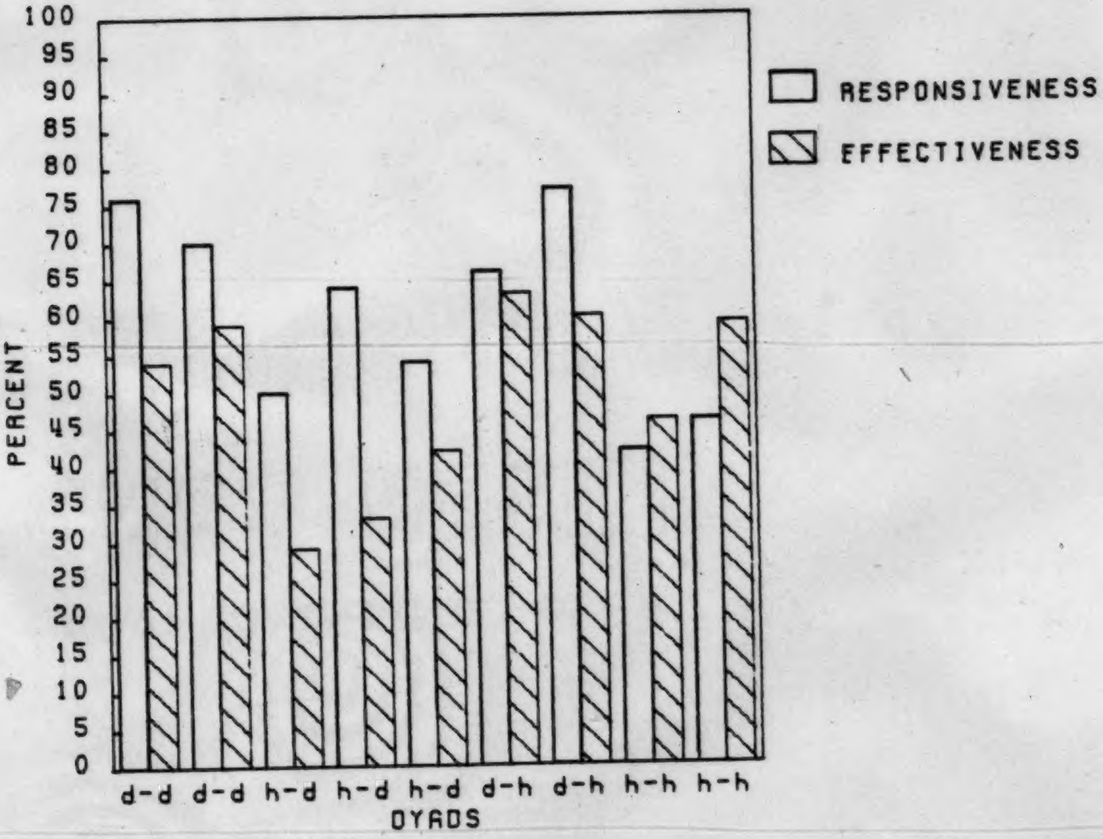


FIGURE 15

EMITTED BEHAVIORS OVER TIME

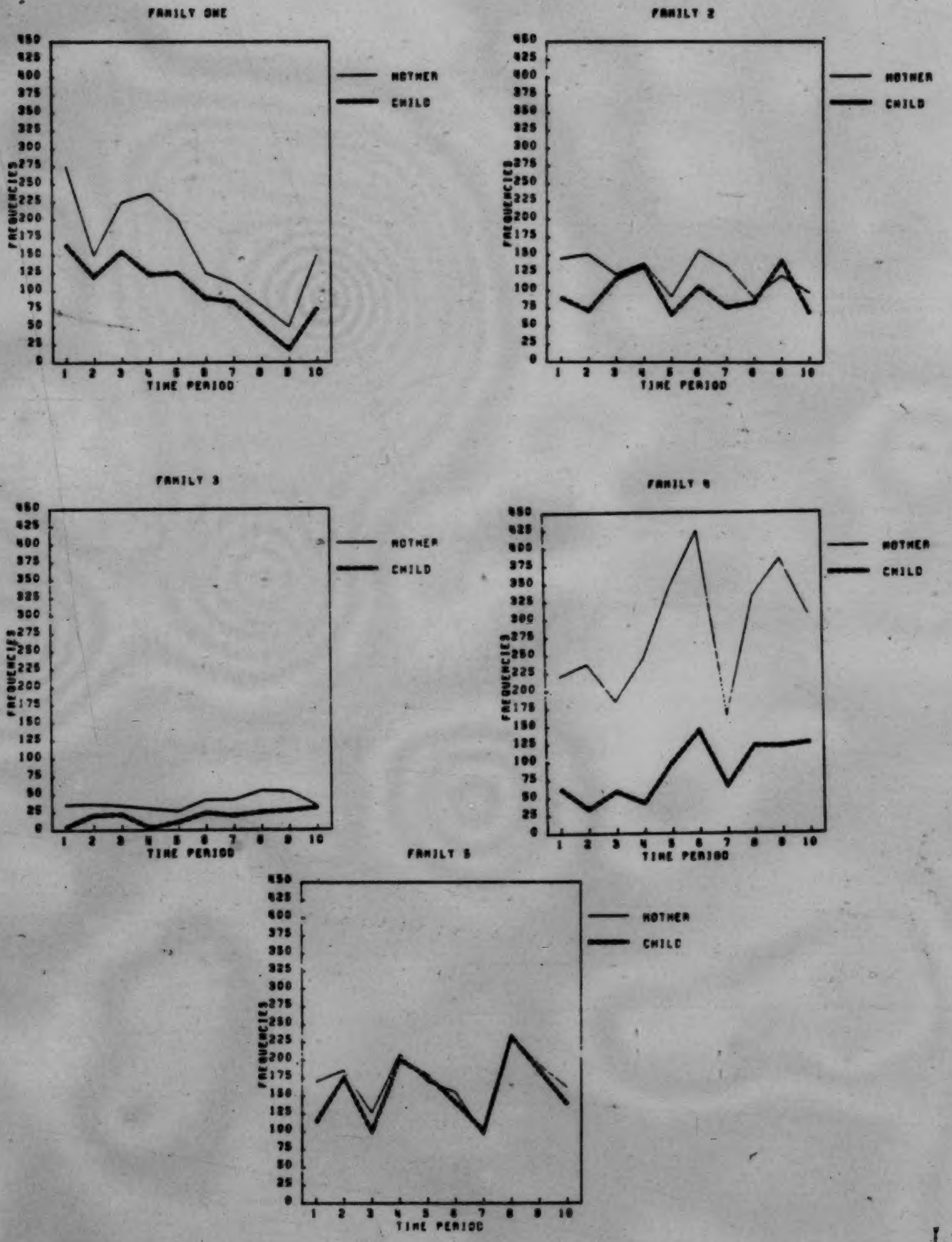
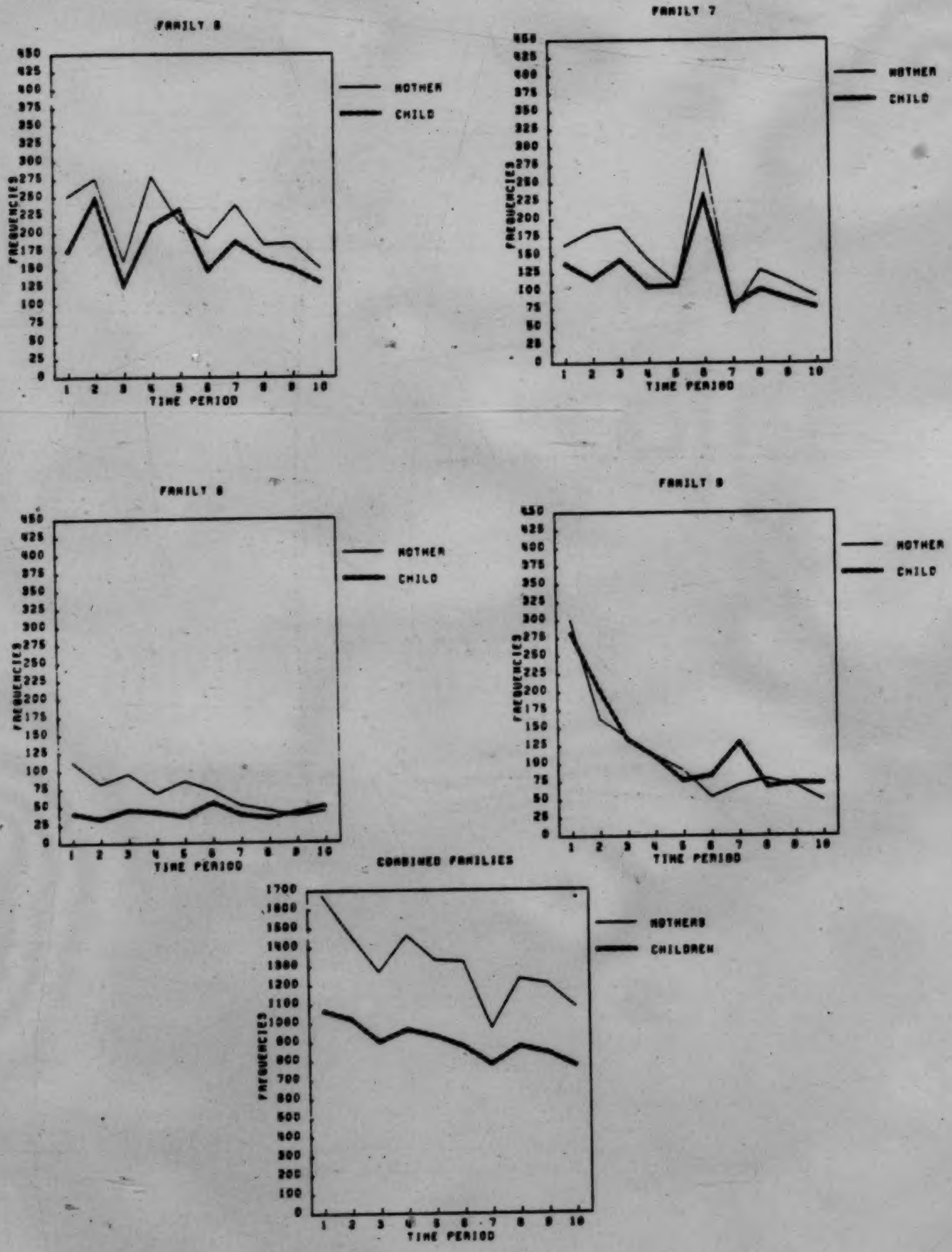


FIGURE 15 (continued)

EMITTED BEHAVIORS OVER TIME



which these lines parallel one another within families.

Table 22 presents the overall frequencies for each mother behavior over time. While most behaviors consistently decreased over time, negative and attention seeking behaviors show more consistency across observations, as did directing. Although the data collection period was shorter, these observations are consistent with Clarke-Stewart's (1973) findings that mothers became more negative and directive over time. This appears to be more a function of mothers 'getting used to' the observers and feeling free to be more negative with their children when they pleased, rather than promoting the more socially acceptable positive mother behaviors.

Children, as well, decreased their total interactive behaviors over the ten weeks of the study. Figure 15 presents total children's behaviors over time and although this type of data does not allow for causal interpretation, the effects of mother and child on one another's behaviors seems apparent. Table 23 presents the overall frequencies for each child behavior over time. While most behaviors consistently decreased over time, positive, negative and attention seeking behaviors show relative increases. As well, children showed less fluctuation in their behaviors over time than mothers did, with the exception of one behavior, questioning, which markedly decreased over time.

Children's behaviors are probably less affected by observers since, at this age, children are not generally

TABLE 22

CHANGES IN MATERNAL BEHAVIORS OVER TIME

Beh.	Time										
	1	2	3	4	5	6	7	8	9	10	$\bar{x}$
Pos.	86	89	43	74	49	62	38	61	51	67	62.0
Neg.	36	40	38	46	25	46	42	33	36	28	37.0
Dem.	41	46	31	22	19	23	49	31	27	13	30.2
Dir.	219	191	144	116	168	240	130	179	182	142	171.1
Stim.	61	86	56	36	47	46	35	29	35	36	46.7
Ques.	412	295	277	309	250	226	192	231	199	236	262.7
Inf.	747	643	618	715	687	619	435	623	628	501	621.6
A.S.	52	65	61	86	80	60	52	46	52	58	61.2
Exp.	21	11	5	10	10	4	4	2	0	4	71.0
$\bar{x}$	186.1	162.9	141.4	157.1	148.3	147.3	108.6	137.2	134.4	120.6	151.5

Note: All behaviors are presented as total frequencies of events.

TABLE 23

CHANGES IN CHILD BEHAVIORS OVER TIME

Beh.	Time										
	1	2	3	4	5	6	7	8	9	10	$\bar{x}$
Pos.	37	54	25	37	27	54	31	56	38	59	41.8
Neg.	41	21	33	17	66	29	62	23	48	61	40.1
Imit.	52	56	29	33	64	27	25	57	46	29	41.8
Rsp.	187	151	116	117	138	195	89	133	135	105	136.6
Pl.	306	286	265	311	276	338	282	316	237	251	286.8
Ques.	132	152	108	115	62	37	58	63	39	36	80.2
Inf.	584	553	561	612	512	463	469	503	483	460	520.0
A.S.	36	37	33	39	66	75	52	45	57	25	46.5
$\bar{x}$	171.9	163.8	146.3	160.1	151.4	152.3	133.5	149.5	135.4	128.3	149.2

Note: All behaviors are presented as total frequencies of events except play, which is presented as total time spent at this activity.

influenced to do 'the right thing'. Also, observers spent many hours in the homes before the first recorded observation visit and children appear to have become used to these strangers, more than the mothers had.

APPENDIX G

CORRELATIONS

TABLE 24

FAMILY ONE (D-D)

CROSS CORRELATIONS BETWEEN MATERNAL AND CHILD BEHAVIORS

	CHILD'S BEHAVIORS							
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res pond	Play	Ques-tion	In-form	Attn Seek
Expressive Positive	.820	.330		.330				
Expressive Negative								-.330
Demonstr.								
Direct		.390		.730			.340	
Stimulate								.640
Question			.690			.660	.710	
Inform			.830			.780	.800	
Attn. Seek			.360		.520		.580	
Expand			.630			.700	.420	

TABLE 25

FAMILY ONE (D-D)

INTERCORRELATIONS BETWEEN MOTHER'S BEHAVIORS

	MOTHER'S BEHAVIORS								
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Demon-strate	Direct	Stimu-late	Ques-tion	Inform	Attn Seek	Expand
Expressive Positive									
Expressive Negative									
Demonstr.									
Direct							.425		
Stimulate									
Question							.744	.445	.676
Inform								.653	.631
Attn. Seek									
Expand									

TABLE 26

FAMILY ONE (D-D)

INTERCORRELATIONS BETWEEN CHILD'S BEHAVIORS

	CHILD'S BEHAVIORS							
CHILD'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res-pond	Play	Ques-tion	In-form	Attn Seek
Expressive Positive								
Expressive Negative				.336				
Imitate						.751	.705	
Respond								
Play								.383
Question							.563	
Inform								
Attn. Seek								

TABLE 27

FAMILY TWO (D-D)

CROSS CORRELATIONS BETWEEN MATERNAL AND CHILD BEHAVIORS

	CHILD'S BEHAVIORS							
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res pond	Play	Ques-tion	In-form	Attn Seek
Expressive Positive	.364		.442		-.599			
Expressive Negative				.406				
Demonstr.			.427		-.318	.423		
Direct				.861				
Stimulate								
Question			.477		-.436		.638	
Inform			.395		-.537		.785	
Attn. Seek			.358	.354				
Expand								

TABLE 28

FAMILY TWO (D-D)

INTERCORRELATIONS BETWEEN MOTHER'S BEHAVIORS

	MOTHER'S BEHAVIORS								
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Demon-strate	Direct	Stimu-late	Ques-tion	Inform	Attn. Seek	Expand
Expressive Positive						.369	.381		
Expressive Negative				.507					.361
Demonstr.								.373	
Direct								.385	.330
Stimulate								.375	
Question							.748		
Inform								.354	
Attn. Seek									
Expand									

TABLE 29

FAMILY TWO (D-D)

INTERCORRELATIONS BETWEEN CHILD'S BEHAVIORS

	CHILD'S BEHAVIORS							
CHILD'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res-pond	Play	Ques-tion	In-form	Attn Seek
Expressive Positive								
Expressive Negative								
Imitate					-.491			
Respond								
Play							-.341	
Question								
Inform								.342
Attn. Seek								

TABLE 30

FAMILY THREE (H-D)

CROSS CORRELATIONS BETWEEN MATERNAL AND CHILD BEHAVIORS

	CHILD'S BEHAVIORS							
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res pond	Play	Ques-tion	In-form	Attn Seek
Expressive Positive	.567			.546			.313	
Expressive Negative								.500
Demonstr.								
Direct			.369	.776	-.325			.430
Stimulate	.386							
Question		.403	.330		-.573		.308	
Inform		.305	.456		-.329			
Attn. Seek		.403		.323				
Expand								

TABLE 31

FAMILY THREE (H-D)

INTERCORRELATIONS BETWEEN MOTHER'S BEHAVIORS

	MOTHER'S BEHAVIORS								
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Demon-strate	Direct	Stimu-late	Ques-tion	Inform	Attn Seek	Expand
Expressive Positive				.358					
Expressive Negative				.354		-.410	.362		
Demonstr.					.396				
Direct							.446	.350	
Stimulate									
Question									
Inform									
Attn. Seek									
Expand									

TABLE 32

FAMILY THREE (H-D)

INTERCORRELATIONS BETWEEN CHILD'S BEHAVIORS

	CHILD'S BEHAVIORS							
CHILD'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi- tate	Res- pond	Play	Ques- tion	In- form	Attn Seek
Expressive Positive							.308	
Expressive Negative					-.412			
Imitate				.404	-.561			
Respond					-.434			
Play								.522
Question								
Inform								
Attn. Seek								

TABLE 33

FAMILY FOUR (H-D)

CROSS CORRELATIONS BETWEEN MATERNAL AND CHILD BEHAVIORS

	CHILD'S BEHAVIORS							
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res pond	Play	Ques-tion	In-form	Attn Seek
Expressive Positive				.353				
Expressive Negative	-.491							
Demonstr.			.772					
Direct	.451			.948	.380		.435	
Stimulate					-.453			
Question		.460						
Inform	.570			.728	.318		.414	
Attn. Seek					.325			
Expand		.586						

TABLE 34

FAMILY FOUR (H-D)

INTERCORRELATIONS BETWEEN MOTHER'S BEHAVIORS

	MOTHER'S BEHAVIORS								
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Demon-strate	Direct	Stimu-late	Ques-tion	Inform	Attn Seek	Expand
Expressive Positive				.314	.323		.581		
Expressive Negative									
Demonstr.								-.310	
Direct							.740	.349	
Stimulate									
Question									.611
Inform									
Attn. Seek									.343
Expand									

TABLE 35

FAMILY FOUR (H-D)

INTERCORRELATIONS BETWEEN CHILD'S BEHAVIORS

	CHILD'S BEHAVIORS							
CHILD'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi- tate	Res- pond	Play	Ques- tion	In- form	Attn Seek
Expressive Positive				.424	.370		.441	-.323
Expressive Negative								
Imitate					.311		.413	
Respond							.378	
Play								-.381
Question							.348	
Inform								-.340
Attn. Seek								

TABLE 36

FAMILY FIVE (H-Do)

CROSS CORRELATIONS BETWEEN MATERNAL AND CHILD BEHAVIORS

	CHILD'S BEHAVIORS							
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res pond	Play	Ques-tion	In-form	Attn Seek
Expressive Positive	.498			.551			.482	.371
Expressive Negative								
Demonstr.		.610						
Direct			.325	.953	.442		.508	.365
Stimulate						.547		.449
Question				.324			.427	
Inform	.434		.797	.310			.788	
Attn. Seek			.462					
Expand						.625		

TABLE 37

FAMILY FIVE (H-Do)

INTERCORRELATIONS BETWEEN MOTHER'S BEHAVIORS

	MOTHER'S BEHAVIORS								
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Demon-strate	Direct	Stimu-late	Ques-tion	Inform	Attn Seek	Expand
Expressive Positive				.583					
Expressive Negative				.315		-.307			
Demonstr.					.308				.360
Direct									
Stimulate									.798
Question									
Inform									
Attn. Seek									
Expand									

TABLE 38

FAMILY FIVE (H-Do)

INTERCORRELATIONS BETWEEN CHILD'S BEHAVIORS

	CHILD'S BEHAVIORS							
CHILD'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res-pond	Play	Ques-tion	In-form	Attn Seek
Expressive Positive		.301				.487		
Expressive Negative								
Imitate				.312	.363		.590	
Respond					.454		.581	
Play							.382	
Question								
Inform								
Attn. Seek								

TABLE 39

FAMILY SIX (D-H)

CROSS CORRELATIONS BETWEEN MATERNAL AND CHILD BEHAVIORS

	CHILD'S BEHAVIORS							
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi- tate	Res pond	Play	Ques- tion	In- form	Attn Seek
Expressive Positive	.788			.578		.363		
Expressive Negative			.388					
Demonstr.			.309	.929				
Direct								
Stimulate							.323	
Question						.382	.791	
Inform			.727	.383	.323	.675	.553	
Attn. Seek								
Expand			.575	.638		.591		

TABLE 40

FAMILY SIX (D-H)

INTERCORRELATIONS BETWEEN MOTHER'S BEHAVIORS

	MOTHER'S BEHAVIORS								
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Demon-strate	Direct	Stimu-late	Ques-tion	Inform	Attn Seek	Expand
Expressive Positive				.527		.304			.447
Expressive Negative					.398				
Demonstr.							.446		
Direct						.335		.382	.503
Stimulate						.378			
Question							.391		
Inform								.328	.637
Attn. Seek									
Expand									

TABLE 41

FAMILY SIX (D-H)

INTERCORRELATIONS BETWEEN CHILD'S BEHAVIORS

	CHILD'S BEHAVIORS							
CHILD'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res-pond	Play	Ques-tion	In-form	Attn Seek
Expressive Positive				.322		.356		
Expressive Negative								.570
Imitate				.437		.464		
Respond						.347		
Play						-.355	-.442	
Question							.366	
Inform								
Attn. Seek								

TABLE 42

FAMILY SEVEN (D-H)

CROSS CORRELATIONS BETWEEN MATERNAL AND CHILD BEHAVIORS

	CHILD'S BEHAVIORS							
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res pond	Play	Ques-tion	In-form	Attn Seek
Expressive Positive	.971							
Expressive Negative					.365			.408
Demonstr.	.408		.784	.438	.335		.437	
Direct		.448		.729			.397	
Stimulate		.373			.400	.381	.454	.398
Question							.887	.380
Inform		.323	.563		.379	.539	.821	.584
Attn. Seek							.371	
Expand			.854	.385	.500			

TABLE 43

FAMILY SEVEN (D-H)

INTERCORRELATIONS BETWEEN MOTHER'S BEHAVIORS

	MOTHER'S BEHAVIORS								
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Demon-strate	Direct	Stimu-late	Ques-tion	Inform	Attn Seek	Expand
Expressive Positive			.393						
Expressive Negative					.470		.453	.320	
Demonstr.					.336	.459	.500		.796
Direct					.444		.443	.335	
Stimulate						.327	.628		
Question							.600	.369	
Inform									.440
Attn. Seek									
Expand									

TABLE 44

FAMILY SEVEN (D-H)

INTERCORRELATIONS BETWEEN CHILD'S BEHAVIORS

	CHILD'S BEHAVIORS							
CHILD'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imitate	Respond	Play	Question	Inform	Attn Seek
Expressive Positive			.308					
Expressive Negative				.332				
Imitate				.336	.571		.363	
Respond								
Play								.415
Question							.483	.402
Inform								.637
Attn. Seek								

TABLE 45

FAMILY EIGHT (H-H)

CROSS CORRELATIONS BETWEEN MATERNAL AND CHILD BEHAVIORS

	CHILD'S BEHAVIORS							
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res pond	Play	Ques-tion	In-form	Attn Seek
Expressive Positive			.600	.338				
Expressive Negative								
Demonstr.			.906					
Direct			.325	.995	.512			
Stimulate			.370				.307	
Question			.436					
Inform				.589	.414			
Attn. Seek								
Expand								

TABLE 46

FAMILY EIGHT (H-H)

INTERCORRELATIONS BETWEEN MOTHER'S BEHAVIORS

	MOTHER'S BEHAVIORS								
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Demon- strate	Direct	Stimu- late	Ques- tion	Inform	Attn Seek	Expand
Expressive Positive			.558	.350	.471	.551	.392	.425	
Expressive Negative									
Demonstr.				.381	370				.377
Direct							.586		
Stimulate								.913	
Question							.484		
Inform									
Attn. Seek									
Expand									

TABLE 47

FAMILY EIGHT (H-H)

INTERCORRELATIONS BETWEEN CHILD'S BEHAVIORS

	CHILD'S BEHAVIORS							
CHILD'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res-pond	Play	Ques-tion	In-form	Attn Seek
Expressive Positive								
Expressive Negative								
Imitate								
Respond					.539			
Play						-.504		
Question								
Inform								.388
Attn. Seek								

TABLE 48

FAMILY NINE (H-H)

CROSS CORRELATIONS BETWEEN MATERNAL AND CHILD BEHAVIORS

	CHILD'S BEHAVIORS							
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res pond	Play	Ques-tion	In-form	Attn Seek
Expressive Positive	.567			.452			.312	
Expressive Negative		.493						.455
Demonstr.			.869	.536	.560		.560	
Direct			.458	.997	.814	.510	.802	
Stimulate			.632	.303		.305	.459	
Question			.380	.827	.709	.710	.897	
Inform				.740	.565	.715	.675	
Attn. Seek								
Expand								

TABLE 49

FAMILY NINE (H-H)

INTERCORRELATIONS BETWEEN MOTHER'S BEHAVIORS

	MOTHER'S BEHAVIORS								
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Demon-strate	Direct	Stimu-late	Ques-tion	Inform	Attn Seek	Expand
Expressive Positive				.450					
Expressive Negative									
Demonstr..				.535	.349	.403	.345		
Direct					.302	.831	.731		
Stimulate						.334			
Question							.811		
Inform									
Attn. Seek									
Expand									

TABLE 50

FAMILY NINE (H-H)

INTERCORRELATIONS BETWEEN CHILD'S BEHAVIORS

	CHILD'S BEHAVIORS							
CHILD'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res-pond	Play	Ques-tion	In-form	Attn Seek
Expressive Positive				.311				
Expressive Negative								.745
Imitate				.457	.416		.566	
Respond					.814	.517	.799	
Play						.363	.718	
Question							.511	
Inform								
Attn. Seek								

TABLE 51

GROUP ONE (D-D)

CROSS CORRELATIONS BETWEEN MATERNAL AND CHILD BEHAVIORS

	CHILD'S BEHAVIORS							
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res-pond	Play	Ques tion	In-form	Attn Seek
Expressive Positive	.640							
Expressive Negative								
Demonstrate								
Direct				.800				
Stimulate								
Question			.590				.680	
Inform			.670				.790	
Attn. Seek			.360					
Expand								

TABLE 52

GROUP ONE (D-D)

INTERCORRELATIONS BETWEEN MOTHER'S BEHAVIORS

	MOTHER'S BEHAVIORS								
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Demon-strate	Direct	Stimu-late	Ques-tion	Inform	Attn Seek	Expand
Expressive Positive									
Expressive Negative									
Demonstr.									
Stimulate									
Question							.750		
Inform								.520	
Attn. Seek									
Expand									

TABLE 53

GROUP ONE (D-D)

INTERCORRELATIONS BETWEEN CHILD'S BEHAVIORS

	CHILD'S BEHAVIORS							
CHILD'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res-pond	Play	Ques tion	In-form	Attn Seek
Expressive Positive								
Expressive Negative								
Demonstr.	NO INTERCORRELATIONS ABOVE .30							
Stimulate								
Question								
Inform								
Attn. Seek								
Expand								

TABLE 54

GROUP TWO (H-D)

CROSS CORRELATIONS BETWEEN MATERNAL AND CHILD BEHAVIORS

	CHILD'S BEHAVIORS							
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res-pond	Play	Ques tion	In-form	Attn Seek
Expressive Positive				.460				
Expressive Negative								
Demonstr.								
Direct				.890				
Stimulate								
Question		.440						
Inform								
Attn. Seek								
Expand								

TABLE 55

GROUP TWO (H-D)

INTERCORRELATIONS BETWEEN MOTHER'S BEHAVIORS

	MOTHER'S BEHAVIORS								
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Demon-strate	Direct	Stimu-late	Ques-tion	Inform	Attn Seek	Expand
Expressive Positive				.340					
Expressive Negative									
Demonstr.									
Direct							.650	.490	
Stimulate									
Question									
Inform									
Attn. Seek									
Expand									

TABLE 56

GROUP TWO (H-D)

INTERCORRELATIONS BETWEEN CHILD'S BEHAVIORS

	CHILD'S BEHAVIORS							
CHILD'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res-pond	Play	Ques tion	In-form	Attn Seek
Expressive Positive							.350	
Expressive Negative								
Imitate								
Respond								
Play								
Question								
Inform								
Attn. Seek								

TABLE 57

GROUP FOUR (D-H)

CROSS CORRELATIONS BETWEEN MATERNAL AND CHILD BEHAVIORS

	CHILD'S BEHAVIORS							
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res-pond	Play	Ques tion	In-form	Attn Seek
Expressive Positive	.92							
Expressive Negative								
Demonstr.			.630					
Direct				.860				
Stimulate							.390	
Question							.85	
Inform			.650			.610	.720	
Attn. Seek								
Expand			.750	.530				

TABLE 58

GROUP FOUR (D-H)

INTERCORRELATIONS BETWEEN MOTHER'S BEHAVIORS

	MOTHER'S BEHAVIORS								
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Demon-strate	Direct	Stimu-late	Ques-tion	Inform	Attn Seek	Expand
Expressive Positive									
Expressive Negative					.440				
Demonstr.							.470		
Direct								.360	
Stimulate						.360			
Question							.500		
Inform									.550
Attn. Seek									
Expand									

TABLE 59

GROUP FOUR (D-H)

INTERCORRELATIONS BETWEEN CHILD'S BEHAVIORS

	CHILD'S BEHAVIORS							
CHILD'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi- tate	Res- pond	Play	Ques tion	In- form	Attn Seek
Expressive Positive								
Expressive Negative								
Imitate				.390				
Respond								
Play								
Question							.430	
Inform								
Attn. Seek								

TABLE 60

GROUP FIVE (H-H)

CROSS CORRELATIONS BETWEEN MATERNAL AND CHILD BEHAVIORS

	CHILD'S BEHAVIORS							
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi- tate	Res- pond	Play	Ques tion	In- form	Attn Seek
Expressive Positive								
Expressive Negative								
Demonstr.			.890					
Direct			.400	.990	.690			
Stimulate			.510				.390	
Question			.410					
Inform				.670	.500			
Attn. Seek								
Expand								

TABLE 61

GROUP FIVE (H-H)

INTERCORRELATIONS BETWEEN MOTHER'S BEHAVIORS

	MOTHER'S BEHAVIORS								
MOTHER'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Demon-strate	Direct	Stimu-late	Ques-tion	Inform	Attn Seek	Expand
Expressive Positive				.400					
Expressive Negative									
Demonstr.					.370	.390			
Direct							.670		
Stimulate									
Question							.680		
Inform									
Attn. Seek									
Expand									

TABLE 62

GROUP FIVE (H-H)

INTERCORRELATIONS BETWEEN CHILD'S BEHAVIORS

	CHILD'S BEHAVIORS							
CHILD'S BEHAVIORS	Exp. Pos.	Exp. Neg.	Imi-tate	Res-pond	Play	Ques tion	In-form	Attn Seek
Expressive Positive								
Expressive Negative								
Imitate								
Respond					.710			
Play								
Question								
Inform								
Attn. Seek								

APPENDIX H

LAG DATA

TABLE 63

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY ONE (D-D) / MOTHER

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN-DEV.	Z	95 PCT CONF. INTVL.
	0	1	52	3411	3411	0.015	0.015	0.002	0.000	0.019 to 0.011
	0	2	46	3411	3411	0.013	0.013	0.002	0.000	0.017 to 0.010
	0	3	64	3411	3411	0.019	0.019	0.002	0.000	0.023 to 0.014
	0	4	97	3411	3411	0.028	0.028	0.003	0.000	0.034 to 0.023
	0	5	1033	3411	3411	0.303	0.303	0.008	0.000	0.318 to 0.287
	0	6	123	3411	3411	0.036	0.036	0.003	0.000	0.042 to 0.030
	0	7	571	3411	3411	0.167	0.167	0.006	0.000	0.180 to 0.155
	0	8	45	3411	3411	0.013	0.013	0.002	0.000	0.017 to 0.009
01	1	1	23	56	54	0.411	0.015	0.016	24.154	0.047 to -0.017
	1	2	6	56	54	0.107	0.013	0.015	6.076	0.044 to -0.017
	1	3	0	56	54	0.000	0.019	0.018	-1.035	0.054 to -0.017
	1	4	0	56	54	0.000	0.028	0.022	-1.280	0.072 to -0.015
	1	5	9	56	54	0.161	0.303	0.061	-2.315	0.423 to 0.182
	1	6	1	56	54	0.018	0.036	0.025	-0.731	0.085 to -0.013
	1	7	8	56	54	0.143	0.167	0.050	-0.492	0.265 to 0.070
	1	8	0	56	54	0.000	0.013	0.015	-0.865	0.043 to -0.017
02	1	1	1	65	59	0.015	0.015	0.015	0.009	0.045 to -0.015
	1	2	10	65	59	0.154	0.013	0.014	9.811	0.042 to -0.015
	1	3	0	65	59	0.000	0.019	0.017	-1.115	0.052 to -0.014
	1	4	1	65	59	0.015	0.028	0.021	-0.633	0.069 to -0.012
	1	5	23	65	59	0.354	0.303	0.057	0.895	0.415 to 0.191
	1	6	2	65	59	0.031	0.036	0.023	-0.229	0.081 to -0.009
	1	7	3	65	59	0.046	0.167	0.046	-2.618	0.258 to 0.077
	1	8	0	65	59	0.000	0.013	0.014	-0.932	0.041 to -0.015
03	1	1	1	65	48	0.015	0.015	0.015	0.009	0.045 to -0.015
	1	2	1	65	48	0.015	0.013	0.014	0.133	0.052 to -0.015
	1	3	20	65	48	0.308	0.019	0.017	17.168	0.052 to -0.014
	1	4	1	65	48	0.015	0.028	0.021	-0.633	0.069 to 0.012
	1	5	18	65	48	0.277	0.303	0.057	-0.455	0.415 to 0.191
	1	6	1	65	48	0.015	0.036	0.023	-0.894	0.081 to -0.009
	1	7	25	65	48	0.385	0.167	0.046	4.691	0.258 to 0.077
	1	8	1	65	48	0.015	0.013	0.014	0.155	0.041 to -0.015
	1	1	1	143	119	0.007	0.015	0.010	-0.805	0.035 to -0.005
	1	2	2	143	119	0.014	0.013	0.010	0.052	0.032 to -0.005

04	1	3	1	143	119	0.007	0.019	0.011	-1.037	0.041 to -0.003
	1	4	94	143	119	0.657	0.028	0.014	45.245	0.056 to 0.001
	1	5	27	143	119	0.189	0.303	0.038	-2.968	0.378 to 0.228
	1	6	2	143	119	0.014	0.036	0.016	-1.416	0.067 to 0.006
	1	7	20	143	119	0.140	0.167	0.031	-0.882	0.229 to 0.106
	1	8	0	143	119	0.000	0.013	0.010	-1.383	0.032 to -0.006
05	1	1	0	61	55	0.000	0.015	0.016	-0.972	0.046 to -0.016
	1	2	0	61	55	0.000	0.013	0.015	-0.913	0.042 to -0.015
	1	3	0	61	55	0.000	0.019	0.017	-1.080	0.053 to -0.015
	1	4	2	61	55	0.033	0.028	0.021	0.204	0.070 to -0.013
	1	5	50	61	55	0.820	0.303	0.059	8.785	0.418 to 0.188
	1	6	0	61	55	0.000	0.036	0.024	-1.511	0.083 to -0.011
	1	7	12	61	55	0.197	0.167	0.048	0.613	0.261 to 0.074
	1	8	0	61	55	0.000	0.013	0.015	-0.903	0.042 to -0.015
06	1	1	1	143	113	0.007	0.015	0.010	-0.805	0.035 to -0.005
	1	2	1	143	113	0.007	0.013	0.010	-0.673	0.032 to -0.005
	1	3	2	143	113	0.014	0.019	0.011	-0.421	0.041 to -0.003
	1	4	1	143	113	0.007	0.028	0.014	-1.543	0.056 to 0.001
	1	5	16	143	113	0.112	0.303	0.038	-4.970	0.378 to 0.228
	1	6	7	143	113	0.049	0.036	0.016	0.827	0.067 to 0.006
	1	7	99	143	113	0.692	0.167	0.031	16.813	0.229 to 0.106
	1	8	0	143	113	0.000	0.013	0.010	-1.383	0.032 to -0.006
07	1	1	16	840	685	0.019	0.015	0.004	0.900	0.024 to 0.007
	1	2	11	840	685	0.013	0.013	0.004	-0.098	0.021 to 0.006
	1	3	48	840	685	0.057	0.019	0.005	8.198	0.028 to 0.010
	1	4	7	840	685	0.008	0.028	0.006	-3.505	0.040 to 0.017
	1	5	222	840	685	0.264	0.303	0.016	-2.432	0.334 to 0.171
	1	6	78	840	685	0.093	0.036	0.006	8.829	0.049 to 0.023
	1	7	230	840	685	0.274	0.167	0.013	8.261	0.193 to 0.142
	1	8	8	840	685	0.010	0.013	0.004	-0.932	0.021 to 0.005
08	1	1	2	201	200	0.010	0.015	0.009	-0.613	0.032 to -0.002
	1	2	2	201	200	0.010	0.013	0.008	-0.435	0.029 to -0.002
	1	3	10	201	200	0.050	0.019	0.010	3.238	0.038 to 0.000
	1	4	10	10	200	0.050	0.028	0.012	1.818	0.051 to 0.005
	1	5	40	201	200	0.199	0.303	0.032	-3.204	0.366 to 0.239
	1	6	14	201	200	0.070	0.036	0.013	2.554	0.062 to 0.010
	1	7	50	201	200	0.070	0.036	0.013	3.090	0.219 to 0.116
	1	8	2	201	200	0.010	0.013	0.008	-0.403	0.029 to -0.003
09	1	1	2	27	5	0.074	0.015	0.024	2.495	0.061 to -0.031
	1	2	0	27	5	0.000	0.013	0.022	-0.608	0.057 to -0.030
	1	3	0	27	5	0.000	0.019	0.026	-0.719	0.070 to -0.032
	1	4	0	27	5	0.000	0.028	0.032	-0.889	0.091 to -0.034
	1	5	4	27	5	0.148	0.303	0.088	-1.749	0.476 to 0.130
	1	6	6	27	5	0.222	0.036	0.036	5.188	0.106 to -0.034
	1	7	9	27	5	0.333	0.167	0.072	2.310	0.308 to 0.027
	1	8	0	27	5	0.000	0.013	0.022	-0.601	0.056 to -0.030

TABLE 64

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY ONE (D-D) / CHILD

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN-DEV	Z	95 PCT CONF. INTVL.
	0	1	56	3411	3411	0.016	0.016	0.002	0.000	0.021 to 0.012
	0	2	65	3411	3411	0.019	0.019	0.002	0.000	0.024 to 0.014
	0	3	65	3411	3411	0.019	0.019	0.002	0.000	0.024 to 0.014
	0	4	143	3411	3411	0.042	0.042	0.003	0.000	0.049 to 0.035
	0	5	61	3411	3411	0.018	0.018	0.002	0.000	0.022 to 0.013
	0	6	143	3411	3411	0.042	0.042	0.003	0.000	0.049 to 0.035
	0	7	840	3411	3411	0.246	0.246	0.007	0.000	0.261 to 0.232
	0	8	201	3411	3411	0.059	0.059	0.004	0.000	0.067 to 0.051
	0	9	27	3411	3411	0.008	0.008	0.002	0.000	0.011 to 0.005
01	1	1	23	52	50	0.442	0.016	0.018	24.168	0.051 to -0.018
	1	2	2	52	50	0.038	0.019	0.019	1.024	0.056 to -0.018
	1	3	0	52	50	0.000	0.019	0.019	-1.005	0.056 to -0.018
	1	4	2	52	50	0.038	0.042	0.028	-0.125	0.096 to -0.013
	1	5	2	52	50	0.038	0.018	0.018	1.120	0.054 to -0.013
	1	6	1	52	50	0.019	0.042	0.028	-0.816	0.096 to -0.013
	1	7	6	52	50	0.005	0.246	0.060	-2.191	0.363 to 0.129
	1	8	2	52	50	0.038	0.059	0.033	-0.627	0.123 to -0.005
	1	9	0	52	50	0.000	0.008	0.012	-0.644	0.032 to -0.016
02	1	1	7	46	44	0.152	0.016	0.019	7.246	0.053 to -0.020
	1	2	5	46	44	0.109	0.019	0.020	4.447	0.059 to -0.020
	1	3	0	46	44	0.000	0.029	0.020	-0.945	0.059 to -0.020
	1	4	3	46	44	0.065	0.042	0.030	0.788	0.100 to -0.016
	1	5	0	46	44	0.000	0.018	0.020	-0.915	0.056 to -0.020
	1	6	6	46	44	0.130	0.042	0.030	2.995	0.100 to -0.016
	1	7	15	46	44	0.326	0.246	0.064	1.257	0.371 to 0.122
	1	8	1	46	44	0.022	0.059	0.035	-1.071	0.127 to -0.009
	1	9	0	46	44	0.000	0.008	0.013	-0.606	0.034 to -0.018
03	1	1	4	64	64	0.063	0.016	0.016	2.901	0.048 to -0.015
	1	2	1	64	64	0.016	0.019	0.017	-0.201	0.053 to -0.014
	1	3	4	64	64	0.063	0.019	0.017	2.542	0.053 to -0.014
	1	4	1	64	64	0.016	0.042	0.025	-1.050	0.091 to -0.007
	1	5	0	64	64	0.000	0.018	0.017	-1.080	0.050 to -0.015
	1	6	4	64	64	0.063	0.042	0.025	0.821	0.091 to -0.007
	1	7	27	64	64	0.422	0.246	0.054	3.261	0.352 to 0.141
	1	8	4	64	64	0.063	0.059	0.029	0.121	0.117 to 0.001

	1	9	1	64	64	0.016	0.008	0.011	0.696	0.030 to -0.014
	1	1	2	96	95	0.021	0.016	0.013	0.340	0.042 to -0.009
	1	2	1	96	95	0.010	0.019	0.014	-0.619	0.046 to -0.008
	1	3	2	96	95	0.021	0.019	0.014	0.127	0.046 to -0.008
	1	4	10	96	95	0.104	0.042	0.020	3.043	0.082 to 0.002
04	1	5	2	96	95	0.021	0.018	0.014	0.218	0.044 to -0.009
	1	6	1	96	95	0.010	0.042	0.020	-1.540	0.082 to 0.002
	1	7	30	96	95	0.313	0.246	0.044	1.506	0.332 to 0.160
	1	8	5	96	95	0.052	0.059	0.024	-0.285	0.106 to 0.012
	1	9	0	96	95	0.000	0.008	0.009	-0.875	0.026 to -0.010
	1	1	12	1033	213	0.012	0.016	0.004	-1.214	0.024 to 0.009
	1	2	29	1033	213	0.028	0.019	0.004	2.120	0.027 to 0.011
	1	3	10	1033	213	0.010	0.019	0.004	-1.204	0.027 to 0.011
	1	4	36	1033	213	0.035	0.042	0.006	-1.134	0.054 to 0.030
05	1	5	12	1033	213	0.012	0.018	0.004	-1.520	0.026 to 0.010
	1	6	28	1033	213	0.027	0.042	0.006	-2.376	0.054 to 0.030
	1	7	213	1033	213	0.206	0.246	0.013	-2.989	0.273 to 0.220
	1	8	57	1033	213	0.055	0.059	0.007	-0.512	0.073 to 0.045
	1	9	4	1033	213	0.004	0.008	0.003	-1.466	0.013 to 0.003
	1	1	0	123	116	0.000	0.016	0.011	-1.433	0.039 to -0.006
	1	2	0	123	116	0.000	0.019	0.012	-1.546	0.043 to -0.005
	1	3	1	123	116	0.008	0.019	0.012	-0.886	0.043 to -0.005
	1	4	4	123	116	0.033	0.042	0.018	-0.520	0.087 to 0.007
06	1	5	1	123	116	0.008	0.018	0.012	-0.816	0.041 to -0.006
	1	6	0	123	116	0.000	0.042	0.018	-2.320	0.077 to 0.007
	1	7	111	123	116	0.902	0.246	0.039	16.891	0.322 to 0.170
	1	8	0	123	116	0.000	0.059	0.021	-2.775	0.101 to 0.017
	1	9	2	123	116	0.016	0.008	0.008	1.044	0.024 to -0.008
	1	1	5	571	540	0.009	0.016	0.005	-1.441	0.027 to 0.006
	1	2	11	571	540	0.019	0.019	0.006	0.036	0.030 to 0.008
	1	3	34	571	540	0.060	0.029	0.006	7.076	0.030 to 0.008
	1	4	29	571	540	0.051	0.042	0.008	1.057	0.058 to 0.025
07	1	5	25	571	540	0.044	0.018	0.006	4.670	0.029 to 0.007
	1	6	66	571	540	0.116	0.042	0.008	8.783	0.058 to 0.025
	1	7	291	571	540	0.510	0.246	0.018	14.607	0.282 to 0.211
	1	8	31	571	540	0.054	0.059	0.010	-0.470	0.079 to 0.040
	1	9	9	571	540	0.016	0.008	0.004	2.116	0.015 to 0.001
	1	1	0	45	45	0.00	0.016	0.019	-0.867	0.054 to -0.021
	1	2	1	45	45	0.022	0.019	0.020	0.155	0.059 to -0.021
	1	3	1	45	45	0.022	0.019	0.020	0.155	0.059 to -0.021
	1	4	0	45	45	0.000	0.042	0.030	-1.403	0.100 to -0.017
08	1	5	1	45	45	0.022	0.018	0.020	0.220	0.057 to -0.021
	1	6	7	45	45	0.156	0.042	0.030	3.803	0.100 to -0.017
	1	7	24	45	45	0.533	0.246	0.064	4.470	0.372 to 0.120
	1	8	5	45	45	0.111	0.059	0.035	1.487	0.128 to -0.010
	1	9	0	45	45	0.000	0.008	0.013	-0.599	0.034 to -0.018

TABLE 65

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY TWO (D-D) / MOTHER

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN-DEV	Z	95 PCT CONF. INTVL.
	0	1	51	3196	3196	0.016	0.016	0.002	0.000	0.020 to 0.012
	0	2	15	3196	3196	0.005	0.005	0.001	0.000	0.007 to 0.002
	0	3	31	3196	3196	0.010	0.010	0.002	0.000	0.013 to 0.006
	0	4	88	3196	3196	0.028	0.028	0.003	0.000	0.033 to 0.022
	0	5	1240	3196	3196	0.388	0.388	0.009	0.000	0.405 to 0.371
	0	6	45	3196	3196	0.014	0.014	0.002	0.000	0.018 to 0.010
	0	7	639	3196	3196	0.200	0.200	0.007	0.000	0.214 to 0.186
	0	8	89	3196	3196	0.028	0.028	0.003	0.000	0.034 to 0.022
	1	1	32	75	61	0.427	0.016	0.014	28.384	0.044 to -0.012
	1	2	0	75	61	0.000	0.005	0.008	-0.595	0.020 to -0.011
	1	3	1	75	61	0.013	0.010	0.011	0.321	0.032 to -0.012
01	1	4	0	75	61	0.000	0.028	0.019	-1.457	0.065 to -0.009
	1	5	24	75	61	0.320	0.388	0.056	-1.208	0.498 to 0.278
	1	6	1	75	61	0.013	0.014	0.014	-0.055	0.041 to -0.013
	1	7	8	75	61	0.107	0.200	0.046	-2.020	0.290 to 0.109
	1	8	1	75	61	0.013	0.028	0.019	-0.764	0.065 to -0.009
	1	1	3	57	49	0.053	0.016	0.017	2.210	0.048 to -0.017
	1	2	2	57	49	0.035	0.005	0.009	3.357	0.022 to -0.013
	1	3	0	57	49	0.000	0.010	0.013	-0.747	0.035 to -0.016
02	1	4	0	57	49	0.000	0.028	0.022	-1.270	0.070 to -0.015
	1	5	18	57	49	0.316	0.388	0.065	-1.119	0.514 to 0.261
	1	6	1	57	49	0.018	0.014	0.016	0.222	0.045 to -0.017
	1	7	16	57	49	0.281	0.200	0.053	1.525	0.304 to 0.096
	1	8	1	57	49	0.018	0.028	0.022	-0.473	0.071 to -0.015
	1	1	0	38	29	0.000	0.016	0.020	-0.785	0.056 to -0.024
	1	2	1	38	29	0.026	0.005	0.011	1.950	0.026 to -0.017
	1	3	16	38	29	0.421	0.010	0.016	25.873	0.041 to -0.021
03	1	4	0	38	29	0.000	0.028	0.027	-1.037	0.080 to -0.024
	1	5	21	38	29	0.553	0.388	0.079	2.083	0.543 to 0.233
	1	6	0	38	29	0.000	0.014	0.019	-0.737	0.052 to -0.023
	1	7	8	38	29	0.211	0.200	0.065	0.163	0.327 to 0.073
	1	8	0	38	29	0.000	0.028	0.027	-1.043	0.080 to -0.024
	1	1	1	120	85	0.008	0.016	0.011	-0.666	0.038 to -0.006
	1	2	1	120	85	0.008	0.005	0.006	0.583	0.017 to -0.008

04	1	3	0	120	85	0.000	0.010	0.009	-1.084	0.027 to -0.008
	1	4	86	120	85	0.717	0.028	0.015	46.134	0.057 to -0.002
	1	5	26	120	85	0.217	0.388	0.044	-3.851	0.475 to 0.301
	1	6	1	120	85	0.008	0.014	0.011	-0.534	0.035 to -0.007
	1	7	6	120	85	0.050	0.200	0.037	-4.107	0.271 to 0.128
	1	8	1	120	85	0.008	0.028	0.015	-1.299	0.057 to -0.002
05	1	1	1	81	72	0.012	0.016	0.014	-0.259	0.043 to -0.011
	1	2	0	81	72	0.000	0.005	0.008	-0.618	0.020 to -0.010
	1	3	3	81	72	0.037	0.010	0.011	2.510	0.031 to -0.012
	1	4	1	81	72	0.012	0.028	0.018	-0.835	0.063 to -0.008
	1	5	69	81	72	0.852	0.388	0.054	8.567	0.494 to 0.282
	1	6	0	81	72	0.000	0.014	0.013	-1.076	0.040 to -0.012
	1	7	10	81	72	0.123	0.200	0.044	-1.721	0.287 to 0.113
	1	8	0	81	72	0.000	0.028	0.018	-1.523	0.064 to -0.008
06	1	1	0	138	115	0.000	0.016	0.011	-1.496	0.037 to -0.005
	1	2	0	138	115	0.0000	0.005	0.006	-0.807	0.016 to -0.007
	1	3	0	138	115	0.000	0.010	0.008	-1.163	0.026 to -0.007
	1	4	1	138	115	0.007	0.028	0.014	-1.456	0.055 to 0.000
	1	5	18	138	115	0.130	0.388	0.041	-6.209	0.469 to 0.307
	1	6	3	138	115	0.022	0.014	0.010	0.764	0.034 to -0.006
	1	7	110	138	115	0.797	0.200	0.034	17.540	0.267 to 0.133
	1	8	0	138	115	0.000	0.028	0.014	-1.988	0.055 to 0.000
07	1	1	8	589	504	0.014	0.016	0.005	-0.460	0.026 to 0.006
	1	2	6	589	504	0.010	0.005	0.003	1.951	0.010 to -0.001
	1	3	15	589	504	0.025	0.010	0.004	3.904	0.018 to 0.002
	1	4	6	589	504	0.010	0.028	0.007	-2.573	0.041 to 0.014
	1	5	186	589	504	0.316	0.388	0.020	-3.596	0.427 to 0.349
	1	6	17	589	504	0.029	0.014	0.005	3.045	0.024 to 0.005
	1	7	205	589	504	0.348	0.200	0.016	8.987	0.232 to 0.168
	1	8	12	589	504	0.020	0.028	0.007	-1.102	0.041 to 0.015
08	1	1	1	149	148	0.007	0.016	0.010	-0.901	0.036 to -0.004
	1	2	0	149	148	0.000	0.005	0.006	-0.838	0.016 to -0.006
	1	3	0	149	148	0.000	0.010	0.008	-1.208	0.025 to -0.006
	1	4	27	149	148	0.181	0.028	0.013	11.464	0.054 to 0.001
	1	5	34	149	148	0.228	0.388	0.040	-4.003	0.466 to 0.310
	1	6	3	149	148	0.020	0.014	0.010	0.627	0.033 to -0.005
	1	7	37	149	148	0.248	0.200	0.033	1.477	0.264 to 0.136
	1	8	3	149	148	0.020	0.028	0.013	-0.572	0.054 to 0.001
09	1	1	0	5	2	0.000	0.016	0.056	-0.285	0.126 to -0.094
	1	2	0	5	2	0.000	0.005	0.031	-0.154	0.065 to -0.055
	1	3	0	5	2	0.000	0.010	0.044	-0.221	0.096 to -0.076
	1	4	0	5	2	0.000	0.028	0.073	-0.376	0.171 to -0.116
	1	5	1	5	2	0.200	0.388	0.218	-0.863	0.815 to -0.039
	1	6	0	5	2	0.000	0.014	0.053	-0.267	0.117 to -0.089
	1	7	2	5	2	0.400	0.200	0.179	1.119	0.551 to -0.151
	1	8	0	5	2	0.000	0.028	0.074	-0.378	0.172 to -0.116

TABLE 66

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY TWO (D-D) / CHILD

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN- DEV	Z	95 PCT CONF. INTVL.
	0	1	75	3196	3196	0.023	0.023	0.003	0.000	0.029 to 0.018
	0	2	57	3196	3196	0.018	0.018	0.002	0.000	0.022 to 0.013
	0	3	38	3196	3196	0.012	0.012	0.002	0.000	0.016 to 0.008
	0	4	120	3196	3196	0.038	0.038	0.003	0.000	0.044 to 0.031
	0	5	81	3196	3196	0.025	0.025	0.003	0.000	0.031 to 0.020
	0	6	138	3196	3196	0.043	0.043	0.004	0.000	0.050 to 0.036
	0	7	589	3196	3196	0.184	0.184	0.007	0.000	0.198 to 0.171
	0	8	149	3196	3196	0.047	0.047	0.004	0.000	0.054 to 0.039
	0	9	5	3196	3196	0.002	0.002	0.001	0.000	0.003 to 0.000
01	1	1	12	51	48	0.235	0.023	0.021	9.993	0.065 to -0.018
	1	2	1	51	48	0.020	0.018	0.019	0.096	0.054 to -0.018
	1	3	2	51	48	0.039	0.012	0.015	1.800	0.042 to -0.018
	1	4	2	51	48	0.039	0.038	0.027	0.063	0.090 to -0.015
	1	5	1	51	48	0.020	0.025	0.022	-0.261	0.068 to -0.018
	1	6	3	51	48	0.059	0.043	0.028	0.550	0.099 to -0.013
	1	7	9	51	48	0.176	0.184	0.054	-0.144	0.291 to 0.078
	1	8	1	51	48	0.020	0.047	0.030	-0.915	0.104 to -0.011
	1	9	0	51	48	0.000	0.002	0.006	-0.283	0.012 to -0.009
02	1	1	0	15	15	0.000	0.023	0.039	-0.600	0.100 to -0.053
	1	2	0	15	15	0.000	0.018	0.034	-0.522	0.085 to -0.049
	1	3	0	15	15	0.000	0.012	0.028	-0.425	0.067 to -0.043
	1	4	1	15	15	0.067	0.038	0.049	0.593	0.134 to -0.059
	1	5	1	15	15	0.067	0.025	0.041	1.018	0.105 to -0.054
	1	6	4	15	15	0.267	0.043	0.052	4.258	0.146 to -0.060
	1	7	6	15	15	0.400	0.184	0.100	2.155	0.381 to -0.012
	1	8	3	15	15	0.200	0.047	0.054	2.818	0.153 to -0.060
	1	9	0	15	15	0.000	0.002	0.010	-0.153	0.022 to -0.018
03	1	1	3	31	30	0.097	0.023	0.027	2.696	0.077 to -0.030
	1	2	1	31	30	0.032	0.018	0.024	0.607	0.064 to -0.029
	1	3	0	31	30	0.000	0.012	0.019	-0.611	0.050 to -0.026
	1	4	2	31	30	0.065	0.038	0.034	0.790	0.104 to -0.029
	1	5	2	31	30	0.065	0.025	0.028	1.388	0.081 to -0.030
	1	6	3	31	30	0.097	0.043	0.037	1.468	0.115 to -0.028
	1	7	6	31	30	0.194	0.184	0.070	0.133	0.321 to 0.048
	1	8	2	31	30	0.065	0.047	0.038	0.473	0.121 to -0.028

	1	9	0	31	30	0.000	0.002	0.007	-0.220	0.015 to -0.012
	1	1	1	88	88	0.011	0.023	0.016	-0.750	0.055 to -0.008
	1	2	1	88	88	0.011	0.018	0.014	-0.459	0.045 to -0.010
	1	3	2	88	88	0.023	0.012	0.012	0.938	0.035 to -0.011
04	1	4	7	88	88	0.080	0.038	0.020	2.073	0.077 to -0.002
	1	5	3	88	88	0.034	0.025	0.017	0.522	0.058 to -0.007
	1	6	2	88	88	0.023	0.043	0.022	-0.944	0.086 to 0.001
	1	7	14	88	88	0.159	0.184	0.041	-0.610	0.265 to 0.103
	1	8	5	88	88	0.057	0.047	0.022	0.454	0.091 to 0.003
	1	9	0	88	88	0.000	0.002	0.004	-0.371	0.010 to -0.007
	1	1	22	1239	117	0.018	0.023	0.004	-1.328	0.032 to 0.015
	1	2	30	1239	117	0.024	0.018	0.004	1.696	0.025 to 0.010
	1	3	8	1239	117	0.006	0.012	0.003	-1.764	0.018 to 0.006
05	1	4	37	1239	117	0.030	0.038	0.005	-1.423	0.048 to 0.027
	1	5	22	1239	117	0.018	0.025	0.004	-1.699	0.034 to 0.017
	1	6	31	1239	117	0.025	0.043	0.006	-3.145	0.054 to 0.032
	1	7	135	1239	117	0.109	0.184	0.011	-6.839	0.206 to 0.163
	1	8	65	1239	117	0.052	0.047	0.006	0.975	0.058 to 0.035
	1	9	0	1239	117	0.000	0.002	0.001	-1.393	0.004 to -0.001
	1	1	0	45	38	0.000	0.023	0.023	-1.040	0.068 to -0.021
	1	2	0	45	38	0.000	0.018	0.020	-0.904	0.057 to -0.021
	1	3	2	45	38	0.044	0.012	0.016	2.015	0.044 to -0.020
06	1	4	1	45	38	0.022	0.038	0.028	-0.541	0.093 to -0.018
	1	5	2	45	38	0.044	0.025	0.023	0.815	0.071 to -0.021
	1	6	2	45	38	0.044	0.043	0.030	0.042	0.103 to -0.016
	1	7	35	45	38	0.778	0.184	0.058	10.268	0.298 to 0.071
	1	8	0	45	38	0.0	0.047	0.031	-1.483	0.108 to -0.015
	1	9	0	45	38	0.000	0.002	0.006	-0.266	0.013 to -0.010
	1	1	25	639	568	0.039	0.023	0.006	2.614	0.035 to 0.012
	1	2	11	639	568	0.017	0.018	0.005	-0.118	0.028 to 0.008
	1	3	7	639	568	0.011	0.012	0.004	-0.218	0.020 to 0.003
07	1	4	24	639	568	0.038	0.038	0.008	0.002	0.052 to 0.023
	1	5	18	639	568	0.018	0.025	0.006	0.454	0.038 to 0.013
	1	6	59	639	568	0.092	0.043	0.008	6.113	0.059 to 0.027
	1	7	301	639	568	0.471	0.184	0.015	18.696	0.214 to 0.154
	1	8	32	639	568	0.050	0.047	0.008	0.415	0.063 to 0.030
	1	9	1	639	568	0.002	0.002	0.002	0.000	0.005 to -0.001
	1	1	1	89	89	0.011	0.023	0.016	-0.762	0.055 to -0.008
	1	2	2	89	89	0.022	0.018	0.014	0.331	0.045 to -0.010
	1	3	1	89	89	0.011	0.012	0.011	-0.057	0.034 to -0.011
08	1	4	4	89	89	0.045	0.038	0.020	0.367	0.077 to -0.002
	1	5	3	89	89	0.034	0.025	0.017	0.502	0.058 to -0.007
	1	6	2	89	89	0.022	0.043	0.022	-0.961	0.085 to 0.001
	1	7	38	89	89	0.427	0.184	0.041	5.905	0.265 to 0.104
	1	8	4	89	89	0.045	0.047	0.022	-0.075	0.090 to 0.003
	1	9	0	89	89	0.000	0.002	0.004	-0.373	0.010 to -0.007

TABLE 67

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY THREE (H-D) / MOTHER

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN-DEV	Z	95 PCT CONF. INTVL.
	0	1	19	2080	2080	0.009	0.009	0.002	0.000	0.013 to 0.005
	0	2	44	2080	2080	0.021	0.021	0.003	0.000	0.027 to 0.015
	0	3	7	2080	2080	0.003	0.003	0.001	0.000	0.006 to 0.001
	0	4	24	2080	2080	0.012	0.012	0.002	0.000	0.016 to 0.007
	0	5	1390	2080	2080	0.668	0.668	0.010	0.000	0.689 to 0.648
	0	6	0	2080	2080	0.000	0.000	0.000	0.000	0.000 to -0.000
	0	7	43	2080	2080	0.021	0.021	0.003	0.000	0.027 to 0.015
	0	8	49	2080	2080	0.024	0.024	0.003	0.000	0.030 to 0.017
01	1	1	5	40	31	0.125	0.009	0.015	7.702	0.039 to -0.020
	1	2	1	40	31	0.025	0.021	0.023	0.169	0.066 to -0.023
	1	3	0	40	31	0.000	0.003	0.009	-0.368	0.021 to -0.015
	1	4	0	40	31	0.000	0.012	0.017	-0.683	0.045 to -0.022
	1	5	15	40	31	0.375	0.668	0.074	-3.939	0.814 to 0.522
	1	6	0	40	31	0.000	0.000	0.00	0.000	0.000 to -0.000
	1	7	1	40	31	0.025	0.021	0.022	0.192	0.065 to -0.023
	1	8	2	40	31	0.050	0.024	0.024	1.103	0.071 to -0.023
02	1	1	0	42	36	0.000	0.009	0.015	-0.622	0.038 to 0.020
	1	2	5	42	36	0.119	0.021	0.022	4.409	0.065 to -0.022
	1	3	0	42	36	0.000	0.003	0.009	-0.377	0.021 to -0.014
	1	4	1	42	36	0.024	0.012	0.016	0.745	0.044 to -0.021
	1	5	23	42	36	0.548	0.668	0.073	-1.661	0.811 to 0.526
	1	6	0	42	36	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	7	0	42	36	0.000	0.021	0.022	-0.942	0.064 to -0.022
	1	8	2	42	36	0.048	0.024	0.023	1.028	0.069 to -0.022
03	1	1	0	16	15	0.000	0.009	0.024	-0.384	0.056 to -0.037
	1	2	0	16	15	0.000	0.021	0.036	-0.588	0.092 to -0.049
	1	3	5	16	15	0.313	0.003	0.014	21.351	0.032 to -0.025
	1	4	0	16	15	0.000	0.012	0.027	-0.432	0.064 to -0.041
	1	5	10	16	15	0.625	0.668	0.118	-0.368	0.899 to 0.438
	1	6	0	16	15	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	7	0	16	15	0.000	0.021	0.036	-0.581	0.090 to -0.049
	1	8	0	16	15	0.000	0.024	0.038	-0.621	0.098 to -0.051
	1	1	0	47	44	0.000	0.009	0.014	-0.658	0.036 to -0.018
	1	2	1	47	44	0.021	0.021	0.021	0.006	0.062 to -0.020

04	1	3	1	47	44	0.021	0.003	0.008	2.120	0.020 to -0.013
	1	4	21	47	44	0.447	0.012	0.016	27.942	0.042 to -0.019
	1	5	8	47	44	0.170	0.668	0.069	-7.252	0.803 to 0.534
	1	6	0	47	44	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	7	0	47	44	0.000	0.021	0.021	-0.996	0.061 to -0.020
	1	8	0	47	44	0.000	0.024	0.022	-1.065	0.067 to -0.020
05	1	1	5	50	48	0.100	0.009	0.013	6.754	0.036 to -0.017
	1	2	2	50	48	0.040	0.021	0.020	0.926	0.061 to -0.019
	1	3	1	50	48	0.020	0.003	0.008	2.031	0.019 to -0.013
	1	4	2	50	48	0.040	0.012	0.015	1.884	0.041 to -0.018
	1	5	31	50	48	0.620	0.668	0.067	-0.725	0.799 to 0.538
	1	6	0	50	48	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	7	1	50	48	0.020	0.021	0.020	-0.033	0.060 to -0.019
	1	8	2	50	48	0.040	0.024	0.021	0.767	0.066 to -0.018
06	1	1	0	61	60	0.000	0.009	0.012	-0.750	0.033 to -0.015
	1	2	2	61	60	0.033	0.021	0.018	0.631	0.057 to -0.015
	1	3	0	61	60	0.000	0.003	0.007	-0.454	0.018 to -0.011
	1	4	0	61	60	0.000	0.012	0.014	-0.844	0.038 to -0.015
	1	5	27	61	60	0.443	0.668	0.060	-3.743	0.786 to 0.550
	1	6	0	61	60	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	7	5	61	60	0.082	0.021	0.018	3.364	0.056 to -0.015
	1	8	1	61	60	0.016	0.024	0.019	-0.369	0.062 to -0.015
07	1	1	2	121	110	0.017	0.009	0.009	0.855	0.026 to -0.008
	1	2	4	121	110	0.033	0.021	0.013	0.910	0.047 to -0.004
	1	3	1	121	110	0.008	0.003	0.005	0.931	0.014 to -0.007
	1	4	0	121	110	0.000	0.012	0.010	-1.188	0.031 to -0.007
	1	5	54	121	110	0.446	0.668	0.043	-5.186	0.752 to 0.584
	1	6	0	121	110	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	7	6	121	110	0.050	0.021	0.013	2.235	0.046 to -0.005
	1	8	3	121	110	0.025	0.024	0.014	0.090	0.051 to -0.003
08	1	1	0	11	11	0.000	0.009	0.029	-0.318	0.065 to -0.047
	1	2	1	11	11	0.091	0.021	0.043	1.608	0.106 to -0.064
	1	3	0	11	11	0.000	0.003	0.017	-0.193	0.038 to -0.031
	1	4	1	11	11	0.091	0.012	0.032	2.465	0.075 to -0.052
	1	5	6	11	11	0.545	0.668	0.142	-0.865	0.947 to 0.390
	1	6	0	11	11	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	7	0	11	11	0.000	0.021	0.043	0.482	0.105 to -0.063
	1	8	1	11	11	0.091	0.024	0.046	1.473	0.113 to -0.066
09		NO CRITERION								

TABLE 68

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY THREE (H-D) / CHILD

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN DEV	Z	95 PCT CONF. INTVL.
	0	1	40	2080	2080	0.019	0.019	0.003	0.000	0.025 to 0.013
	0	2	42	2080	2080	0.020	0.020	0.033	0.000	0.026 to 0.013
	0	3	16	2080	2080	0.008	0.008	0.002	0.000	0.011 to 0.004
	0	4	47	2080	2080	0.023	0.023	0.003	0.000	0.029 to 0.016
	0	5	50	2080	2080	0.024	0.024	0.003	0.000	0.031 to 0.017
	0	6	61	2080	2080	0.029	0.029	0.004	0.000	0.037 to 0.022
	0	7	121	2080	2080	0.058	0.058	0.005	0.000	0.008 to 0.002
	0	8	11	2080	2080	0.000	0.000	0.000	0.000	0.000 to -0.000
	0	9	0	2080	2080	0.000	0.000	0.000	0.000	0.000 to -0.000
O1	1	1	8	19	16	0.421	0.019	0.032	12.753	0.081 to -0.043
	1	2	0	19	16	0.000	0.020	0.032	-0.626	0.083 to -0.043
	1	3	0	19	16	0.000	0.008	0.020	-0.384	0.047 to -0.032
	1	4	0	19	16	0.000	0.023	0.034	-0.663	0.089 to -0.044
	1	5	4	19	16	0.211	0.024	0.035	5.307	0.093 to -0.045
	1	6	0	19	16	0.000	0.029	0.039	-0.758	0.105 to -0.047
	1	7	2	19	16	0.105	0.058	0.054	0.877	0.163 to -0.047
	1	8	0	19	16	0.000	0.005	0.017	-0.318	0.038 to -0.027
	1	9	0	19	16	0.000	0.000	0.000	0.000	0.000 to -0.000
O2	1	1	3	44	43	0.068	0.019	0.021	2.364	0.060 to -0.021
	1	2	2	44	43	0.045	0.020	0.021	1.191	0.062 to -0.021
	1	3	0	44	43	0.000	0.008	0.013	-0.584	0.034 to -0.018
	1	4	4	44	43	0.091	0.023	0.022	3.049	0.067 to -0.021
	1	5	0	44	43	0.000	0.024	0.023	-1.041	0.069 to -0.021
	1	6	5	44	43	0.114	0.029	0.025	3.315	0.079 to -0.021
	1	7	9	44	43	0.205	0.058	0.035	4.148	0.127 to -0.016
	1	8	0	44	43	0.000	0.005	0.011	-0.484	0.027 to -0.016
	1	9	0	44	43	0.000	0.000	0.000	0.000	0.000 to -0.000
O3	1	1	0	7	7	0.000	0.019	0.052	-0.370	0.121 to -0.083
	1	2	0	7	7	0.000	0.020	0.053	-0.380	0.124 to -0.083
	1	3	0	7	7	0.000	0.008	0.033	-0.233	0.072 to -0.057
	1	4	0	7	7	0.00	0.023	0.056	-0.402	0.133 to -0.087
	1	5	1	7	7	0.143	0.024	0.058	2.052	0.138 to -0.089
	1	6	0	7	7	0.000	0.029	0.064	-0.460	0.154 to -0.096
	1	7	1	7	7	0.143	0.058	0.088	0.957	0.232 to -0.115
	1	8	0	7	7	0.000	0.005	0.027	-0.193	0.059 to -0.048

	1	9	0	7	7	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	7	24	24	0.292	0.019	0.028	9.718	0.074 to -0.036
	1	2	0	24	24	0.000	0.020	0.029	-0.703	0.076 to -0.036
	1	3	0	24	24	0.000	0.008	0.018	-0.431	0.043 to -0.027
04	1	4	5	24	24	0.208	0.023	0.030	6.123	0.082 to -0.037
	1	5	1	24	24	0.042	0.024	0.031	0.564	0.085 to -0.037
	1	6	1	24	24	0.042	0.029	0.034	0.358	0.097 to -0.038
	1	7	1	24	24	0.042	0.058	0.048	-0.345	0.152 to -0.035
	1	8	0	24	24	0.000	0.005	0.015	-0.357	0.034 to -0.024
	1	9	0	24	24	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	12	1390	148	0.009	0.019	0.004	-2.877	0.026 to 0.012
	1	2	23	1390	148	0.017	0.020	0.004	-0.966	0.028 to 0.013
	1	3	9	1390	148	0.006	0.008	0.002	-0.520	0.012 to 0.003
05	1	4	6	1390	148	0.004	0.023	0.004	-4.586	0.030 to 0.015
	1	5	29	1390	148	0.021	0.024	0.004	-0.773	0.032 to 0.016
	1	6	29	1390	148	0.021	0.029	0.005	-1.870	0.038 to 0.020
	1	7	52	1390	148	0.037	0.058	0.006	-3.307	0.070 to 0.046
	1	8	5	1390	148	0.004	0.005	0.002	-0.869	0.009 to 0.001
	1	9	0	1390	148	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	2	42	42	0.048	0.019	0.021	1.340	0.061 to -0.022
	1	2	2	42	42	0.048	0.020	0.022	1.264	0.063 to -0.022
	1	3	0	42	42	0.000	0.008	0.013	-0.571	0.034 to -0.019
07	1	4	0	42	42	0.000	0.023	0.023	-0.985	0.068 to -0.022
	1	5	2	42	42	0.048	0.024	0.024	0.988	0.070 to -0.022
	1	6	5	42	42	0.119	0.029	0.026	3.446	0.080 to -0.022
	1	7	7	42	42	0.167	0.058	0.036	3.004	0.129 to -0.013
	1	8	1	42	42	0.024	0.005	0.011	1.655	0.027 to -0.017
	1	9	0	42	42	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	1	48	47	0.021	0.019	0.020	0.081	0.058 to -0.020
	1	2	1	48	47	0.021	0.020	0.020	0.032	0.060 to -0.020
	1	3	0	48	47	0.000	0.008	0.013	-0.610	0.032 to -0.017
08	1	4	4	48	47	0.083	0.023	0.021	2.832	0.065 to -0.019
	1	5	2	48	47	0.042	0.024	0.022	0.797	0.067 to -0.019
	1	6	4	48	47	0.083	0.029	0.024	2.218	0.077 to -0.018
	1	7	12	48	47	0.250	0.058	0.034	5.678	0.124 to -0.008
	1	8	0	48	47	0.000	0.005	0.010	-0.505	0.026 to -0.015
	1	9	0	48	47	0.000	0.000	0.000	0.000	0.000 to -0.000

TABLE 69

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY FOUR (H-D) / MOTHER

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN- DEV	Z	95 PCT CONF. INTVL.
	0	1	72	4171	4171	0.017	0.017	0.002	0.000	0.021 to 0.013
	0	2	75	4171	4171	0.018	0.018	0.002	0.000	0.022 to 0.014
	0	3	34	4171	4171	0.008	0.008	0.001	0.000	0.011 to 0.005
	0	4	569	4171	4171	0.136	0.136	0.005	0.000	0.147 to 0.126
	0	5	2141	4171	4171	0.513	0.513	0.008	0.000	0.528 to 0.498
	0	6	1	4171	4171	0.000	0.000	0.000	0.000	0.001 to -0.000
	0	7	118	4171	4171	0.028	0.028	0.003	0.000	0.033 to 0.023
	0	8	12	4171	4171	0.003	0.003	0.001	0.000	0.005 to 0.001
01	1	1	4	99	98	0.040	0.017	0.013	1.768	0.043 to -0.008
	1	2	0	99	98	0.000	0.018	0.013	-1.346	0.044 to -0.008
	1	3	0	99	98	0.000	0.008	0.009	-0.902	0.026 to -0.010
	1	4	1	99	98	0.010	0.136	0.034	-3.662	0.204 to 0.069
	1	5	50	99	98	0.505	0.513	0.050	-0.164	0.612 to 0.415
	1	6	0	99	98	0.000	0.000	0.002	-0.154	0.003 to -0.003
	1	7	3	99	98	0.030	0.028	0.017	0.121	0.061 to -0.004
	1	8	0	99	98	0.000	0.003	0.005	-0.534	0.013 to -0.008
02	1	1	0	118	112	0.000	0.017	0.012	-1.440	0.041 to -0.006
	1	2	3	118	112	0.025	0.018	0.012	0.608	0.042 to -0.006
	1	3	0	118	112	0.000	0.008	0.008	-0.985	0.024 to -0.008
	1	4	6	118	112	0.051	0.136	0.032	-2.708	0.198 to 0.074
	1	5	68	118	112	0.576	0.513	0.046	1.368	0.603 to 0.423
	1	6	0	118	112	0.000	0.000	0.001	-0.168	0.003 to -0.003
	1	7	0	118	112	0.000	0.028	0.015	-1.854	0.058 to -0.002
	1	8	0	118	112	0.000	0.003	0.005	-0.583	0.013 to -0.002
03	1	1	0	31	30	0.000	0.017	0.023	-0.738	0.063 to -0.029
	1	2	0	31	30	0.000	0.018	0.024	-0.753	0.065 to -0.029
	1	3	0	31	30	0.645	0.008	0.016	39.44	0.040 to -0.024
	1	4	3	31	30	0.097	0.136	0.062	-0.643	0.257 to 0.016
	1	5	11	31	30	0.355	0.513	0.090	-1.765	0.689 to 0.337
	1	6	0	31	30	0.000	0.000	0.003	-0.086	0.006 to -0.005
	1	7	9	31	30	0.290	0.028	0.030	8.799	0.087 to -0.030
	1	8	0	31	30	0.000	0.003	0.010	-0.299	0.022 to -0.016
	1	1	10	752	728	0.013	0.017	0.005	-0.835	0.027 to 0.008
	1	2	5	752	728	0.007	0.018	0.005	-2.339	0.027 to 0.008

04	1	3	2	752	728	0.003	0.008	0.003	-1.675	0.015 to 0.002
	1	4	553	752	728	0.735	0.136	0.013	47.854	0.161 to 0.112
	1	5	407	752	728	0.541	0.513	0.018	1.532	0.549 to 0.478
	1	6	0	752	728	0.000	0.000	0.001	-0.425	0.001 to -0.001
	1	7	3	752	728	0.004	0.028	0.006	-4.019	0.040 to 0.016
	1	8	2	752	728	0.003	0.003	0.002	-0.111	0.007 to -0.001
05	1	1	2	43	42	0.047	0.017	0.020	1.473	0.057 to -0.022
	1	2	0	43	42	0.000	0.018	0.020	-0.887	0.058 to -0.022
	1	3	0	43	42	0.000	0.008	0.014	-0.594	0.035 to -0.019
	1	4	11	43	42	0.256	0.136	0.052	2.281	0.239 to 0.034
	1	5	21	43	42	0.488	0.513	0.076	-0.327	0.663 to 0.364
	1	6	0	43	42	0.000	0.000	0.002	-0.102	0.005 to -0.004
	1	7	0	43	42	0.000	0.028	0.025	-1.119	0.078 to -0.021
	1	8	1	43	42	0.023	0.003	0.008	2.495	0.019 to -0.013
06	1	1	7	318	315	0.022	0.017	0.007	0.650	0.032 to 0.003
	1	2	2	318	315	0.006	0.018	0.007	-1.569	0.033 to 0.003
	1	3	1	318	315	0.003	0.008	0.005	-0.993	0.018 to -0.002
	1	4	1	318	315	0.003	0.136	0.019	-6.924	0.174 to 0.099
	1	5	142	318	315	0.447	0.513	0.028	-2.382	0.568 to 0.458
	1	6	0	318	315	0.000	0.000	0.001	-0.276	0.002 to -0.001
	1	7	58	318	315	0.182	0.028	0.009	16.574	0.047 to 0.010
	1	8	2	318	315	0.006	0.003	0.003	1.136	0.009 to -0.003
07	1	1	26	1413	1390	0.018	0.017	0.003	0.329	0.024 to 0.010
	1	2	23	1413	1390	0.016	0.018	0.004	-0.482	0.025 to 0.011
	1	3	22	1413	1390	0.016	0.008	0.002	3.101	0.013 to 0.003
	1	4	7	1413	1390	0.005	0.136	0.009	-14.398	0.154 to 0.119
	1	5	719	1413	1390	0.509	0.513	0.013	-0.335	0.539 to 0.487
	1	6	1	1413	1390	0.001	0.000	0.000	1.136	0.001 to -0.001
	1	7	41	1413	1390	0.029	0.028	0.004	0.165	0.037 to 0.020
	1	8	5	1413	1390	0.004	0.003	0.001	0.464	0.006 to 0.000
08	1	1	0	62	61	0.000	0.017	0.017	-1.044	0.050 to -0.015
	1	2	0	62	61	0.000	0.018	0.017	-1.065	0.051 to -0.015
	1	3	0	62	61	0.000	0.008	0.011	-0.714	0.031 to -0.014
	1	4	2	62	61	0.032	0.136	0.044	-2.390	0.222 to 0.051
	1	5	42	62	61	0.677	0.513	0.063	2.585	0.638 to 0.389
	1	6	0	62	61	0.000	0.000	0.002	-0.122	0.004 to -0.004
	1	7	3	62	61	0.048	0.028	0.021	0.954	0.070 to -0.013
	1	8	0	62	61	0.000	0.003	0.007	-0.423	0.016 to -0.010
09	1	1	0	7	7	0.000	0.017	0.049	-0.351	0.114 to -0.079
	1	2	1	7	7	0.143	0.018	0.050	2.486	0.116 to -0.080
	1	3	0	7	7	0.000	0.008	0.034	-0.240	0.075 to -0.058
	1	4	0	7	7	0.000	0.136	0.130	-1.052	0.391 to -0.118
	1	5	4	7	7	0.571	0.513	0.189	0.308	0.884 to 0.143
	1	6	0	7	7	0.000	0.000	0.006	-0.041	0.012 to -0.011
	1	7	0	7	7	0.000	0.028	0.063	-0.451	0.151 to -0.095
	1	8	0	7	7	0.000	0.003	0.020	-0.142	0.043 to -0.037

TABLE 70

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY FOUR (H-D) / CHILD

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN-DEV	Z	95 PCT CONF. INTVL.
	0	1	99	4171	4171	0.024	0.024	0.002	0.000	0.028 to 0.019
	0	2	118	4171	4171	0.028	0.028	0.003	0.000	0.003 to 0.023
	0	3	31	4171	4171	0.007	0.007	0.001	0.000	0.010 to 0.005
	0	4	752	4171	4171	0.180	0.180	0.006	0.000	0.192 to 0.169
	0	5	43	4171	4171	0.010	0.010	0.002	0.000	0.013 to 0.007
	0	6	319	4171	4171	0.076	0.076	0.004	0.000	0.085 to 0.068
	0	7	1413	4171	4171	0.339	0.339	0.007	0.000	0.353 to 0.324
	0	8	62	4171	4171	0.015	0.015	0.002	0.000	0.019 to 0.011
	0	9	7	4171	4171	0.002	0.002	0.001	0.000	0.003 to 0.000
01	1	1	7	72	63	0.097	0.024	0.018	4.096	0.059 to -0.011
	1	2	0	72	63	0.000	0.028	0.020	-1.448	0.067 to -0.010
	1	3	0	72	63	0.000	0.007	0.010	-0.734	0.027 to -0.012
	1	4	10	72	63	0.139	0.180	0.045	-0.914	0.269 to 0.091
	1	5	1	72	63	0.014	0.010	0.012	0.301	0.034 to -0.013
	1	6	6	72	63	0.083	0.076	0.031	0.219	0.138 to 0.015
	1	7	28	72	63	0.389	0.339	0.056	0.899	0.448 to 0.229
	1	8	1	72	63	0.014	0.015	0.014	-0.068	0.043 to -0.013
	1	9	0	72	63	0.000	0.002	0.005	-0.348	0.011 to -0.008
02	1	1	0	75	67	0.000	0.024	0.018	-1.350	0.058 to -0.011
	1	2	2	75	67	0.027	0.028	0.019	-0.085	0.066 to -0.009
	1	3	0	75	67	0.000	0.007	0.010	-0.749	0.027 to -0.012
	1	4	6	75	67	0.080	0.180	0.044	-2.259	0.267 to 0.093
	1	5	0	75	67	0.000	0.010	0.012	-0.884	0.033 to -0.013
	1	6	4	75	67	0.053	0.076	0.031	-0.754	0.137 to 0.016
	1	7	25	75	67	0.333	0.339	0.055	-0.099	0.446 to 0.232
	1	8	0	75	67	0.000	0.015	0.014	-1.064	0.042 to -0.013
	1	9	1	75	67	0.013	0.002	0.005	2.466	0.011 to -0.008
03	1	1	4	34	19	0.118	0.024	0.026	3.597	0.075 to -0.027
	1	2	1	34	19	0.029	0.028	0.028	0.039	0.084 to -0.027
	1	3	2	34	19	0.059	0.007	0.015	3.489	0.036 to -0.021
	1	4	6	34	19	0.176	0.180	0.066	-0.058	0.310 to 0.051
	1	5	1	34	19	0.029	0.010	0.017	1.103	0.044 to -0.024
	1	6	1	34	19	0.029	0.076	0.046	-1.033	0.166 to -0.013
	1	7	7	34	19	0.206	0.339	0.081	01.637	0.498 to 0.180
	1	8	0	34	19	0.000	0.015	0.021	-0.716	0.056 to -0.026

	1	9	0	34	19	0.000	0.002	0.007	-0.239	0.015 to -0.012
04	1	1	33	569	547	0.058	0.024	0.006	5.369	0.036 to 0.011
	1	2	23	569	547	0.040	0.028	0.007	1.745	0.042 to 0.015
	1	3	2	569	547	0.004	0.007	0.004	-1.088	0.014 to 0.000
	1	4	134	569	547	0.236	0.180	0.016	3.426	0.212 to 0.149
	1	5	4	569	547	0.007	0.010	0.004	-0.774	0.019 to 0.002
	1	6	54	569	547	0.095	0.076	0.011	1.654	0.098 to 0.055
	1	7	238	569	547	0.418	0.339	0.020	4.007	0.378 to 0.300
	1	8	13	569	547	0.023	0.015	0.005	1.574	0.025 to 0.005
	1	9	0	569	547	0.000	0.002	0.002	-0.978	0.005 to -0.002
05	1	1	49	2141	1474	0.023	0.024	0.003	-0.258	0.030 to 0.017
	1	2	64	2141	1474	0.030	0.028	0.004	0.447	0.035 to 0.021
	1	3	21	2141	1474	0.010	0.007	0.002	1.280	0.011 to 0.004
	1	4	8	2141	1474	0.195	0.180	0.008	1.799	0.197 to 0.164
	1	5	8	2141	1474	0.004	0.010	0.002	-3.011	0.015 to 0.006
	1	6	143	2141	1474	0.067	0.076	0.006	-1.687	0.088 to 0.065
	1	7	735	2141	1474	0.343	0.339	0.010	0.443	0.359 to 0.319
	1	8	42	2141	1474	0.020	0.015	0.003	1.817	0.020 to 0.010
	1	9	4	2141	1474	0.002	0.002	0.001	0.215	0.003 to -0.000
06	1	1	0	1	1	0.000	0.024	0.152	-0.156	0.322 to -0.275
	1	2	0	1	1	0.000	0.028	0.166	-0.171	0.353 to -0.297
	1	3	0	1	1	0.000	0.007	0.086	-0.087	0.176 to -0.161
	1	4	0	1	1	0.000	0.180	0.384	-0.469	0.934 to -0.573
	1	5	0	1	1	0.000	0.010	0.101	-0.102	0.208 to -0.188
	1	6	0	1	1	0.000	0.076	0.266	-0.288	0.597 to -0.444
	1	7	1	1	1	1.000	0.339	0.473	1.397	1.266 to -0.589
	1	8	0	1	1	0.000	0.015	0.121	-0.123	0.252 to -0.222
	1	9	0	1	1	0.000	0.002	0.041	-0.041	0.082 to -0.079
07	1	1	8	118	115	0.068	0.024	0.014	3.144	0.051 to -0.004
	1	2	9	118	115	0.076	0.028	0.015	3.144	0.058 to -0.002
	1	3	4	118	115	0.034	0.007	0.008	3.347	0.023 to -0.008
	1	4	17	118	115	0.144	0.180	0.035	-1.024	0.250 to 0.111
	1	5	2	118	115	0.017	0.010	0.009	0.714	0.029 to -0.008
	1	6	6	118	115	0.051	0.076	0.024	-1.048	0.124 to 0.029
	1	7	62	118	115	0.525	0.339	0.044	4.284	0.424 to 0.253
	1	8	2	118	115	0.017	0.015	0.011	0.187	0.037 to -0.007
	1	9	1	118	115	0.008	0.002	0.004	1.804	0.009 to -0.006
08	1	1	0	12	6	0.000	0.024	0.044	-0.540	0.110 to -0.062
	1	2	0	12	6	0.000	0.028	0.048	-0.591	0.122 to -0.066
	1	3	0	12	6	0.000	0.007	0.025	-0.300	0.056 to -0.041
	1	4	5	12	6	0.417	0.180	0.111	2.130	0.398 to -0.037
	1	5	0	12	6	0.000	0.010	0.029	-0.354	0.067 to -0.047
	1	6	2	12	6	0.167	0.076	0.077	1.176	0.227 to -0.074
	1	7	2	12	6	0.167	0.339	0.137	-1.260	0.607 to 0.071
	1	8	0	12	6	0.000	0.015	0.035	-0.426	0.083 to -0.054
	1	9	0	12	6	0.000	0.002	0.012	-0.142	0.025 to -0.021

TABLE 71

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY FIVE (H-Do) / MOTHER

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN-DEV	Z	95 PCT CONF. INTVL.
	0	1	37	3990	3990	0.009	0.009	0.002	0.000	0.012 to 0.006
	0	2	59	3990	3990	0.015	0.015	0.002	0.000	0.019 to 0.011
	0	3	149	3990	3990	0.037	0.037	0.003	0.000	0.043 to 0.031
	0	4	206	3990	3990	0.052	0.052	0.004	0.000	0.058 to 0.045
	0	5	1749	3990	3990	0.438	0.438	0.008	0.000	0.454 to 0.423
	0	6	41	3990	3990	0.010	0.010	0.002	0.000	0.013 to 0.007
	0	7	1040	3990	3990	0.261	0.261	0.007	0.000	0.274 to 0.247
	0	8	41	3990	3990	0.010	0.010	0.002	0.000	0.013 to 0.007
O1	1	1	2	92	91	0.022	0.009	0.010	1.247	0.029 to -0.010
	1	2	2	92	91	0.022	0.015	0.013	0.552	0.039 to -0.010
	1	3	0	92	91	0.000	0.037	0.020	-1.889	0.076 to -0.001
	1	4	0	92	91	0.000	0.052	0.023	-2.238	0.097 to 0.006
	1	5	47	92	91	0.511	0.438	0.052	1.402	0.540 to 0.337
	1	6	3	92	91	0.033	0.010	0.011	2.124	0.031 to -0.010
	1	7	35	92	91	0.380	0.261	0.047	2.617	0.350 to 0.171
	1	8	2	92	91	0.022	0.010	0.011	1.090	0.031 to -0.010
O2	1	1	1	40	40	0.025	0.009	0.015	1.038	0.039 to -0.020
	1	2	0	40	40	0.000	0.015	0.019	-0.775	0.052 to -0.023
	1	3	1	40	40	0.025	0.037	0.030	-0.412	0.096 to -0.021
	1	4	3	40	40	0.075	0.052	0.035	0.668	0.120 to -0.017
	1	5	20	40	40	0.500	0.438	0.078	0.786	0.592 to 0.285
	1	6	0	40	40	0.000	0.010	0.016	-0.644	0.042 to -0.021
	1	7	10	40	40	0.250	0.261	0.069	-0.154	0.397 to 0.125
	1	8	1	40	40	0.025	0.010	0.016	0.923	0.042 to -0.021
O3	1	1	0	18	12	0.000	0.009	0.023	-0.410	0.054 to -0.035
	1	2	2	18	12	0.111	0.015	0.028	3.386	0.071 to -0.041
	1	3	10	18	12	0.556	0.037	0.045	11.596	0.125 to -0.050
	1	4	0	18	12	0.000	0.052	0.052	-0.990	0.154 to -0.051
	1	5	3	18	12	0.167	0.438	0.117	-2.323	0.668 to 0.209
	1	6	0	18	12	0.000	0.010	0.024	-0.432	0.057 to -0.036
	1	7	10	18	12	0.556	0.261	0.103	2.850	0.463 to -0.058
	1	8	0	18	12	0.000	0.010	0.024	-0.432	0.057 to -0.036
	1	1	1	257	241	0.004	0.009	0.006	-0.900	0.021 to -0.002
	1	2	7	257	241	0.027	0.015	0.008	1.654	0.030 to 0.000

04	1	3	2	257	241	0.008	0.037	0.012	-2.499	0.061 to 0.014
	1	4	200	257	241	0.778	0.052	0.014	52.640	0.079 to 0.025
	1	5	131	257	241	0.510	0.438	0.031	2.306	0.499 to 0.378
	1	6	1	257	241	0.004	0.010	0.006	-1.015	0.023 to -0.002
	1	7	11	257	241	0.043	0.261	0.027	-7.956	0.314 to 0.207
	1	8	2	257	241	0.008	0.010	0.006	-0.396	0.023 to -0.002
05	1	1	0	9	8	0.000	0.009	0.032	-0.290	0.072 to -0.053
	1	2	1	9	8	0.111	0.015	0.040	2.394	0.094 to -0.064
	1	3	0	9	8	0.000	0.037	0.063	-0.591	0.161 to -0.087
	1	4	2	9	8	0.222	0.052	0.074	2.313	0.196 to -0.093
	1	5	2	9	8	0.222	0.438	0.165	-1.307	0.763 to 0.114
	1	6	0	9	8	0.000	0.010	0.034	-0.306	0.076 to -0.056
	1	7	3	9	8	0.333	0.261	0.146	0.497	0.547 to -0.026
	1	8	0	9	8	0.000	0.010	0.034	-0.306	0.076 to -0.056
06	1	1	6	456	451	0.013	0.009	0.004	0.865	0.018 to 0.000
	1	2	13	456	451	0.029	0.015	0.006	2.428	0.026 to 0.004
	1	3	11	456	451	0.024	0.037	0.009	-1.489	0.055 to 0.020
	1	4	3	456	451	0.007	0.052	0.010	-4.348	0.072 to 0.031
	1	5	180	456	451	0.395	0.438	0.023	-1.877	0.484 to 0.393
	1	6	5	456	451	0.011	0.010	0.005	0.146	0.020 to 0.001
	1	7	286	456	451	0.627	0.261	0.021	17.830	0.301 to 0.220
	1	8	2	456	451	0.004	0.010	0.005	-1.247	0.020 to 0.001
07	1	1	15	791	755	0.019	0.009	0.003	2.843	0.016 to 0.003
	1	2	21	791	755	0.027	0.015	0.004	2.741	0.023 to 0.006
	1	3	131	791	755	0.176	0.037	0.007	19.027	0.051 to 0.024
	1	4	7	791	755	0.009	0.052	0.008	-5.437	0.067 to 0.036
	1	5	336	791	755	0.425	0.438	0.018	-0.067	0.473 to 0.404
	1	6	12	791	755	0.015	0.010	0.004	1.365	0.017 to 0.003
	1	7	264	791	755	0.334	0.261	0.016	4.683	0.291 to 0.230
	1	8	2	791	755	0.003	0.010	0.004	-2.161	0.017 to 0.003
08	1	1	0	36	35	0.000	0.009	0.016	-0.580	0.041 to -0.022
	1	2	0	36	35	0.000	0.015	0.020	-0.735	0.054 to -0.025
	1	3	0	36	35	0.000	0.037	0.032	-1.182	0.099 to -0.025
	1	4	2	36	35	0.056	0.052	0.037	0.106	0.124 to -0.021
	1	5	13	36	35	0.361	0.438	0.083	-0.934	0.600 to 0.276
	1	6	0	36	35	0.000	0.010	0.017	-0.611	0.043 to -0.023
	1	7	4	36	35	0.111	0.261	0.073	-2.044	0.404 to 0.117
	1	8	1	36	35	0.028	0.010	0.017	1.041	0.043 to -0.023
09	1	1	0	6	4	0.000	0.009	0.039	-0.237	0.086 to -0.067
	1	2	0	6	4	0.000	0.015	0.049	-0.300	0.111 to -0.082
	1	3	0	6	4	0.000	0.037	0.077	-0.482	0.189 to -0.114
	1	4	0	6	4	0.000	0.052	0.090	-0.572	0.229 to -0.125
	1	5	4	6	4	0.667	0.438	0.203	1.127	0.835 to 0.041
	1	6	0	6	4	0.000	0.010	0.041	-0.250	0.091 to -0.070
	1	7	2	6	4	0.333	0.261	0.179	0.406	0.612 to -0.091
	1	8	0	6	4	0.000	0.010	0.041	-0.250	0.091 to -0.070

TABLE 72

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY FIVE (H-Do) / CHILD

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN- DEV.	Z	95 PCT CONF. INTVL.
	0	1	92	3990	3990	0.023	0.023	0.002	0.000	0.028 to 0.028
	0	2	40	3990	3990	0.010	0.010	0.002	0.000	0.013 to 0.007
	0	3	18	3990	3990	0.005	0.005	0.001	0.000	0.007 to 0.002
	0	4	257	3990	3990	0.064	0.064	0.004	0.000	0.072 to 0.057
	0	5	9	3990	3990	0.002	0.002	0.001	0.000	0.004 to 0.001
	0	6	456	3990	3990	0.114	0.114	0.005	0.000	0.124 to 0.104
	0	7	791	3990	3990	0.198	0.198	0.006	0.000	0.211 to 0.186
	0	8	36	3990	3990	0.009	0.009	0.001	0.000	0.012 to 0.006
	0	9	6	3990	3990	0.002	0.002	0.001	0.000	0.003 to 0.000
01	1	1	3	37	32	0.081	0.023	0.025	2.352	0.071 to -0.025
	1	2	1	37	32	0.027	0.010	0.016	1.038	0.042 to -0.022
	1	3	0	37	32	0.000	0.005	0.011	-0.409	0.026 to -0.017
	1	4	2	37	32	0.054	0.064	0.040	-0.257	0.144 to -0.015
	1	5	0	37	32	0.000	0.002	0.008	-0.289	0.018 to -0.013
	1	6	6	37	32	0.162	0.114	0.052	0.915	0.217 to 0.012
	1	7	9	37	32	0.243	0.198	0.066	0.687	0.327 to 0.070
	1	8	0	37	32	0.000	0.009	0.016	-0.580	0.039 to -0.021
	1	9	0	37	32	0.000	0.002	0.006	-0.236	0.014 to -0.011
02	1	1	4	59	42	0.068	0.023	0.020	2.290	0.061 to -0.015
	1	2	2	59	42	0.034	0.010	0.013	1.841	0.035 to -0.015
	1	3	1	59	42	0.017	0.005	0.009	1.426	0.022 to -0.013
	1	4	4	59	42	0.068	0.064	0.032	0.106	0.127 to 0.002
	1	5	0	59	42	0.000	0.002	0.006	-0.365	0.014 to -0.010
	1	6	9	59	42	0.153	0.114	0.041	0.924	0.195 to 0.033
	1	7	19	59	42	0.322	0.198	0.052	2.385	0.300 to 0.097
	1	8	0	59	42	0.000	0.009	0.012	-0.733	0.033 to -0.015
	1	9	0	59	42	0.000	0.002	0.005	-0.298	0.011 to -0.008
03	1	1	3	149	144	0.020	0.023	0.012	-0.238	0.047 to -0.001
	1	2	1	149	144	0.007	0.010	0.008	-0.406	0.026 to -0.006
	1	3	7	149	144	0.047	0.005	0.005	7.736	0.015 to -0.006
	1	4	8	149	144	0.054	0.064	0.020	-0.533	0.104 to 0.025
	1	5	0	149	144	0.000	0.002	0.004	-0.580	0.010 to -0.005
	1	6	17	149	144	0.114	0.114	0.026	-0.007	0.165 to 0.063
	1	7	70	149	144	0.470	0.198	0.033	8.314	0.262 to 0.134
	1	8	0	149	144	0.000	0.009	0.008	-1.165	0.024 to -0.006

	1	9	0	149	144	0.000	0.002	0.003	-0.474	0.008 to -0.005
04	1	1	8	206	203	0.039	0.023	0.010	1.509	0.044 to 0.003
	1	2	6	206	203	0.029	0.010	0.007	2.752	0.024 to -0.004
	1	3	3	206	203	0.015	0.005	0.005	2.153	0.014 to -0.005
	1	4	31	206	203	0.150	0.064	0.017	5.044	0.098 to 0.031
	1	5	1	206	203	0.005	0.002	0.003	0.786	0.009 to -0.004
	1	6	30	206	203	0.146	0.114	0.022	1.414	0.158 to 0.071
	1	7	41	206	203	0.199	0.198	0.028	0.028	0.253 to 0.144
	1	8	1	206	203	0.005	0.009	0.007	-0.633	0.022 to -0.004
	1	9	1	206	203	0.005	0.002	0.003	1.241	0.007 to -0.004
05	1	1	45	1749	717	0.026	0.023	0.004	0.744	0.030 to 0.016
	1	2	19	1749	717	0.011	0.010	0.002	0.352	0.015 to 0.005
	1	3	3	1749	717	0.002	0.005	0.002	-1.745	0.008 to 0.001
	1	4	132	1749	717	0.075	0.064	0.006	1.884	0.076 to 0.053
	1	5	3	1749	717	0.002	0.002	0.001	-0.476	0.004 to 0.000
	1	6	183	1749	717	0.105	0.114	0.008	-0.476	0.129 to 0.099
	1	7	337	1749	717	0.193	0.198	0.010	-0.584	0.217 to 0.180
	1	8	12	1749	717	0.007	0.009	0.002	-0.956	0.013 to 0.005
	1	9	3	1749	717	0.002	0.002	0.001	0.228	0.003 to -0.000
06	1	1	1	41	40	0.024	0.023	0.023	0.057	0.069 to -0.023
	1	2	0	41	40	0.000	0.010	0.016	-0.644	0.041 to -0.020
	1	3	0	41	40	0.000	0.005	0.010	-0.431	0.025 to -0.016
	1	4	2	41	40	0.049	0.064	0.038	-0.408	0.140 to -0.011
	1	5	0	41	40	0.000	0.002	0.007	-0.304	0.017 to -0.012
	1	6	4	41	40	0.098	0.114	0.050	-0.337	0.212 to 0.017
	1	7	29	41	40	0.707	0.198	0.062	8.176	0.320 to 0.076
	1	8	0	41	40	0.000	0.009	0.015	-0.611	0.038 to -0.020
	1	9	0	41	40	0.000	0.002	0.006	-0.248	0.023 to -0.010
07	1	1	50	1040	1028	0.048	0.023	0.005	5.376	0.032 to 0.014
	1	2	16	1040	1028	0.015	0.010	0.003	1.735	0.016 to 0.004
	1	3	6	1040	1028	0.006	0.005	0.002	0.605	0.009 to 0.000
	1	4	75	1040	1028	0.072	0.064	0.008	1.012	0.079 to 0.049
	1	5	4	1040	1028	0.004	0.002	0.001	1.081	0.005 to -0.001
	1	6	174	1040	1028	0.167	0.114	0.010	5.374	0.134 to 0.095
	1	7	368	1040	1028	0.354	0.198	0.012	12.587	0.222 to 0.174
	1	8	2	1040	1028	0.002	0.009	0.003	-2.421	0.015 to 0.003
	1	9	1	1040	1028	0.001	0.002	0.001	-0.451	0.004 to -0.001
08	1	1	3	41	41	0.073	0.023	0.023	2.138	0.069 to -0.023
	1	2	1	41	41	0.024	0.010	0.016	0.923	0.041 to -0.020
	1	3	0	41	41	0.000	0.005	0.010	-0.431	0.025 to -0.016
	1	4	1	41	41	0.024	0.064	0.038	-1.044	0.140 to -0.011
	1	5	0	41	41	0.000	0.002	0.007	-0.304	0.017 to -0.011
	1	6	8	41	41	0.195	0.114	0.050	1.627	0.212 to 0.017
	1	7	7	41	41	0.171	0.198	0.062	-0.442	0.320 to 0.076
	1	8	0	41	41	0.000	0.009	0.015	-0.611	0.038 to -0.020
	1	9	0	41	41	0.000	0.002	0.006	-0.248	0.013 to -0.010

TABLE 73

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY SIX (D-H) / MOTHER

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN-DEV.	Z	95 PCT CONF. INTVL.
	0	1	90	4621	4621	0.019	0.019	0.002	0.000	0.023 to 0.015
	0	2	94	4621	4621	0.020	0.020	0.022	0.000	0.024 to 0.016
	0	3	102	4621	4621	0.022	0.022	0.002	0.000	0.026 to 0.018
	0	4	81	4621	4621	0.201	0.201	0.002	0.000	0.021 to 0.014
	0	5	930	4621	4621	0.201	0.201	0.006	0.000	0.213 to 0.190
	0	6	204	4621	4621	0.044	0.044	0.003	0.000	0.050 to 0.038
	0	7	1127	4621	4621	0.244	0.244	0.006	0.000	0.256 to 0.232
	0	8	73	4621	4621	0.016	0.016	0.002	0.000	0.019 to 0.012
01	1	1	38	107	102	0.355	0.019	0.013	25.125	0.046 to -0.007
	1	2	0	107	102	0.000	0.020	0.014	-1.491	0.047 to -0.006
	1	3	0	107	102	0.000	0.022	0.014	-1.544	0.050 to -0.006
	1	4	3	107	102	0.028	0.018	0.013	0.828	0.042 to -0.007
	1	5	28	107	102	0.262	0.201	0.039	1.559	0.277 to 0.125
	1	6	3	107	102	0.028	0.044	0.020	-0.811	0.083 to 0.005
	1	7	12	107	102	0.112	0.244	0.042	-3.173	0.325 to 0.163
	1	8	1	107	102	0.009	0.016	0.012	-0.535	0.039 to -0.008
02	1	1	1	28	26	0.036	0.019	0.026	0.622	0.071 to -0.032
	1	2	5	28	26	0.179	0.020	0.027	5.931	0.073 to -0.032
	1	3	0	28	26	0.000	0.018	0.025	-0.795	0.076 to -0.032
	1	4	0	28	26	0.000	0.018	0.025	-0.707	0.077 to -0.031
	1	5	4	28	26	0.143	0.201	0.076	-0.771	0.350 to 0.053
	1	6	0	28	26	0.000	0.044	0.039	-1.137	0.120 to -0.032
	1	7	5	28	26	0.179	0.244	0.081	-0.805	0.403 to 0.085
	1	8	0	28	26	0.000	0.016	0.024	-0.670	0.062 to -0.030
03	1	1	0	102	80	0.000	0.019	0.014	-1.423	0.046 to -0.007
	1	2	1	102	80	0.010	0.020	0.014	-0.754	0.048 to -0.007
	1	3	50	102	80	0.490	0.022	0.015	32.179	0.051 to -0.006
	1	4	1	102	80	0.010	0.018	0.013	-0.594	0.043 to -0.008
	1	5	51	102	80	0.500	0.201	0.040	7.525	0.279 to 0.123
	1	6	6	102	80	0.059	0.044	0.020	0.722	0.084 to 0.004
	1	7	15	102	80	0.147	0.244	0.043	-2.277	0.327 to 0.161
	1	8	0	102	80	0.000	0.016	0.012	-1.280	0.040 to -0.008
	1	1	3	95	89	0.032	0.019	0.014	0.854	0.047 to -0.008
	1	2	1	95	89	0.011	020	0.014	-0.678	0.049 to -0.008

	1	3	1	95	89	0.011	0.022	0.015	-0.766	0.052 to -0.007
04	1	4	74	95	89	0.779	0.018	0.013	56.552	0.044 to -0.009
	1	5	16	95	89	0.168	0.201	0.041	-0.799	0.282 to 0.121
	1	6	0	95	89	0.000	0.044	0.021	-2.095	0.085 to 0.003
	1	7	8	95	89	0.084	0.244	0.044	-3.624	0.330 to 0.158
	1	8	0	95	89	0.000	0.016	0.013	-1.235	0.041 to -0.009
	1	1	0	146	134	0.000	0.019	0.011	-1.703	0.042 to -0.003
	1	2	1	246	134	0.007	0.020	0.012	-1.155	0.043 to -0.003
	1	3	8	146	134	0.021	0.018	0.011	0.278	0.039 to -0.004
05	1	4	3	146	134	0.021	0.018	0.011	0.278	0.039 to -0.004
	1	5	136	146	134	0.932	0.201	0.033	22.008	0.266 to 0.136
	1	6	1	146	134	0.007	0.044	0.017	-1.194	0.077 to 0.011
	1	7	14	146	134	0.096	0.244	0.036	-4.164	0.036 to -0.004
	1	1	8	519	490	0.015	0.019	0.006	0.670	0.031 to 0.008
	1	2	9	519	490	0.017	0.020	0.006	-0.484	0.032 to 0.008
	1	3	3	519	490	0.006	0.022	0.006	-2.526	0.035 to 0.009
06	1	4	0	519	490	0.000	0.018	0.006	-3.043	0.029 to 0.006
	1	5	37	519	490	0.071	0.201	0.018	-7.385	0.236 to 0.167
	1	6	4	519	490	0.008	0.044	0.009	-4.041	0.062 to -0.026
	1	7	423	519	490	0.815	0.244	0.019	30.300	0.281 to 0.207
	1	8	0	519	490	0.000	0.016	0.005	-2.886	0.027 to 0.005
	1	1	12	1064	1023	0.011	0.019	0.004	-1.935	0.028 to 0.011
	1	2	34	1064	1023	0.032	0.020	0.004	2.683	0.029 to 0.012
	1	3	53	1064	1023	0.050	0.022	0.005	6.158	0.031 to 0.013
07	1	4	5	1064	1023	0.005	0.018	0.004	-3.189	0.025 to 0.010
	1	5	214	1064	1023	0.201	0.201	0.012	-0.010	0.255 to 0.177
	1	6	88	1064	1023	0.083	0.044	0.006	6.123	0.056 to 0.032
	1	7	351	1064	1023	0.330	0.244	0.013	6.533	0.270 to 0.218
	1	8	10	1064	1023	0.009	0.016	0.004	-1.674	0.023 to 0.008
	1	1	1	49	49	0.020	0.019	0.020	0.047	0.058 to -0.019
	1	2	1	49	49	0.020	0.020	0.020	0.003	0.060 to -0.019
	1	3	0	49	49	0.000	0.022	0.021	-1.052	0.063 to -0.019
08	1	4	2	49	49	0.041	0.018	0.019	1.242	0.054 to -0.019
	1	5	11	49	49	0.224	0.201	0.057	0.406	0.314 to 0.089
	1	6	0	49	49	0.000	0.044	0.029	-1.504	0.102 to -0.013
	1	7	21	49	49	0.429	0.244	0.061	3.011	0.364 to 0.134
	1	8	1	49	49	0.020	0.016	0.018	0.259	0.051 to -0.019
	1	1	2	25	0	0.080	0.019	0.028	2.190	0.074 to -0.035
	1	2	0	25	0	0.000	0.020	0.028	-0.720	0.076 to -0.035
	1	3	2	25	0	0.080	0.022	0.029	1.971	0.080 to -0.036
09	1	4	0	25	0	0.000	0.018	0.026	-0.668	0.069 to -0.034
	1	5	8	25	0	0.320	0.201	0.080	1.481	0.358 to 0.044
	1	6	2	25	0	0.080	0.044	0.041	0.873	0.125 to -0.036
	1	7	4	25	0	0.160	0.244	0.086	-0.977	0.412 to 0.076
	1	8	0	25	0	0.000	0.016	0.025	-0.633	0.065 to -0.033

TABLE 74

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY SIX (D-H) / CHILD

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN- DEV.	Z	95 PCT CONF. INTVL.
	0	1	107	4621	4621	0.023	0.023	0.022	0.000	0.027 to 0.019
	0	2	28	4621	4621	0.006	0.006	0.001	0.000	0.008 to 0.004
	0	3	102	4621	4621	0.022	0.022	0.002	0.000	0.026 to 0.018
	0	4	95	4621	4621	0.021	0.021	0.002	0.000	0.025 to 0.016
	0	5	146	4621	4621	0.032	0.032	0.003	0.000	0.037 to 0.027
	0	6	519	4621	4621	0.230	0.230	0.006	0.000	0.242 to 0.218
	0	7	1064	4621	4621	0.230	0.230	0.006	0.000	0.242 to 0.218
	0	8	49	4621	4621	0.011	0.011	0.002	0.000	0.014 to 0.008
	0	9	25	4621	4621	0.005	0.005	0.001	0.000	0.008 to 0.003
01	1	1	35	90	81	0.389	0.023	0.016	23.070	0.054 to -0.008
	1	2	0	90	81	0.000	0.006	0.008	-0.741	0.022 to -0.010
	1	3	0	90	81	0.000	0.022	0.015	-1.425	0.052 to -0.008
	1	4	1	90	81	0.011	0.021	0.015	-0.632	0.050 to -0.009
	1	5	3	90	81	0.033	0.032	0.018	0.094	0.068 to -0.005
	1	6	7	90	81	0.078	0.112	0.033	-1.038	0.178 to 0.047
	1	7	13	90	81	0.144	0.230	0.044	-1.934	0.317 to 0.143
	1	8	1	90	81	0.011	0.011	0.011	0.047	0.032 to -0.011
	1	9	1	90	81	0.011	0.005	0.008	0.737	0.021 to -0.010
02	1	1	1	94	79	0.011	0.023	0.016	-0.807	0.054 to -0.007
	1	2	4	94	79	0.043	0.006	0.008	4.559	0.022 to -0.010
	1	3	1	94	79	0.011	0.022	0.015	-0.755	0.052 to -0.008
	1	4	0	94	79	0.000	0.021	0.015	-1.405	0.049 to -0.008
	1	5	3	94	79	0.032	0.032	0.018	0.018	0.067 to -0.004
	1	6	18	94	79	0.191	0.112	0.033	2.431	0.176 to 0.048
	1	7	17	94	79	0.181	0.230	0.043	-1.138	0.315 to 0.145
	1	8	2	94	79	0.021	0.011	0.011	1.010	0.031 to -0.010
	1	9	0	94	79	0.000	0.005	0.008	-0.715	0.020 to -0.009
03	1	1	3	102	100	0.029	0.023	0.015	0.420	0.052 to -0.006
	1	2	0	102	100	0.000	0.006	0.008	-0.789	0.021 to -0.009
	1	3	6	102	100	0.059	0.022	0.015	2.526	0.051 to -0.006
	1	4	1	102	100	0.010	0.021	0.014	-0.765	0.048 to -0.007
	1	5	2	102	100	0.020	0.032	0.017	-0.692	0.066 to -0.002
	1	6	12	102	100	0.118	0.112	0.031	0.171	0.174 to 0.051
	1	7	31	102	100	0.304	0.230	0.042	1.767	0.321 to 0.149
	1	8	1	102	100	0.010	0.011	0.010	-0.079	0.030 to -0.009

	1	9	1	102	100	0.010	0.005	0.007	0.605	0.020 to -0.009
	1	1	7	81	77	0.086	0.023	0.017	3.786	0.056 to -0.010
	1	2	1	81	77	0.012	0.006	0.009	0.729	0.023 to -0.011
	1	3	4	81	77	0.049	0.022	0.016	1.673	0.054 to -0.010
04	1	4	7	81	77	0.086	0.021	0.016	4.177	0.051 to -0.010
	1	5	4	81	77	0.049	0.032	0.019	0.915	0.070 to -0.006
	1	6	5	81	77	0.062	0.112	0.035	-1.442	0.181 to 0.044
	1	7	20	81	77	0.247	0.230	0.047	0.356	0.322 to 0.139
	1	8	0	81	77	0.000	0.011	0.011	-0.932	0.033 to -0.012
	1	9	0	81	77	0.000	0.005	0.008	-0.664	0.021 to -0.011
	1	1	29	930	247	0.031	0.023	0.005	1.628	0.033 to 0.013
	1	2	10	930	247	0.011	0.006	0.003	1.844	0.011 to 0.001
	1	3	23	930	247	0.025	0.022	0.005	0.552	0.032 to 0.013
05	1	4	24	930	247	0.026	0.021	0.005	1.128	0.030 to 0.011
	1	5	16	930	247	0.017	0.032	0.006	-2.509	0.043 to 0.020
	1	6	79	930	247	0.085	0.112	0.010	-2.643	0.133 to 0.092
	1	7	168	930	247	0.181	0.230	0.014	-3.593	0.257 to 0.203
	1	8	16	930	247	0.017	0.011	0.003	1.965	0.017 to 0.004
	1	9	4	930	247	0.004	0.005	0.002	-0.461	0.010 to 0.001
	1	1	2	204	188	0.010	0.023	0.011	-1.268	0.044 to 0.003
	1	2	0	204	188	0.000	0.006	0.005	-1.115	0.017 to -0.005
	1	3	2	204	188	0.010	0.022	0.010	-1.193	0.042 to 0.002
06	1	4	2	204	188	0.010	0.021	0.010	-1.082	0.040 to 0.001
	1	5	6	204	188	0.029	0.032	0.012	-0.178	0.056 to 0.069
	1	6	20	204	188	0.098	0.112	0.022	-0.646	0.156 to 0.069
	1	7	161	204	188	0.789	0.230	0.029	18.964	0.288 to 0.172
	1	8	0	204	188	0.000	0.011	0.007	-1.479	0.025 to -0.003
	1	9	4	204	188	0.020	0.005	0.005	2.764	0.015 to -0.005
	1	1	28	1127	1091	0.025	0.023	0.004	0.377	0.032 to 0.014
	1	2	4	1127	1091	0.004	0.006	0.002	-1.086	0.011 to 0.002
	1	3	30	1127	1091	0.027	0.022	0.004	1.039	0.031 to 0.013
07	1	4	28	1127	1091	0.025	0.021	0.004	1.014	0.029 to 0.012
	1	5	61	1127	1091	0.054	0.032	0.005	4.324	0.042 to 0.021
	1	6	250	1127	1091	0.222	0.112	0.009	11.644	0.131 to 0.094
	1	7	496	1127	1091	0.440	0.230	0.013	16.734	0.255 to 0.206
	1	8	9	1127	1091	0.008	0.011	0.003	-0.858	0.017 to 0.005
	1	9	11	1127	1091	0.010	0.005	0.002	1.991	0.010 to 0.001
	1	1	1	73	73	0.014	0.023	0.018	-0.537	0.058 to -0.011
	1	2	1	73	73	0.014	0.006	0.009	0.841	0.024 to -0.012
	1	3	0	73	73	0.000	0.022	0.017	-1.284	0.056 to -0.012
08	1	4	3	73	73	0.041	0.021	0.017	1.237	0.053 to -0.012
	1	5	2	73	73	0.027	0.032	0.020	-0.205	0.072 to -0.009
	1	6	18	73	73	0.247	0.112	0.037	3.633	0.185 to -0.040
	1	7	28	73	73	0.384	0.230	0.049	3.111	0.327 to 0.134
	1	8	0	73	73	0.000	0.011	0.012	-0.885	0.034 to -0.013
	1	9	1	73	73	0.014	0.005	0.009	0.965	0.022 to -0.011

TABLE 75

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY SEVEN (D-H) / MOTHER

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN-DEV.	Z	95 PCT CONF. INTVL.
	0	1	79	3402	3402	0.023	0.023	0.003	0.000	0.028 to 0.018
	0	2	25	3402	3402	0.007	0.007	0.001	0.000	0.010 to 0.004
	0	3	23	3402	3402	0.007	0.007	0.001	0.000	0.010 to 0.004
	0	4	64	3402	3402	0.019	0.019	0.002	0.000	0.023 to 0.014
	0	5	959	3402	3402	0.282	0.282	0.008	0.000	0.297 to 0.267
	0	6	38	3402	3402	0.011	0.011	0.002	0.000	0.015 to 0.008
	0	7	754	3402	3402	0.222	0.222	0.007	0.000	0.236 to 0.208
	0	8	61	3402	3402	0.018	0.018	0.002	0.000	0.022 to 0.013
01	1	1	43	85	84	0.506	0.023	0.016	29.547	0.055 to -0.009
	1	2	1	85	84	0.012	0.007	0.009	0.477	0.026 to -0.011
	1	3	0	85	84	0.000	0.007	0.009	-0.761	0.024 to -0.011
	1	4	1	85	84	0.012	0.019	0.015	-0.478	0.048 to -0.010
	1	5	18	85	84	0.212	0.282	0.049	-1.437	0.378 to 0.186
	1	6	2	85	84	0.024	0.011	0.011	1.084	0.034 to -0.011
	1	7	4	85	84	0.047	0.222	0.045	-3.875	0.310 to 0.133
	1	8	0	85	84	0.000	0.018	0.014	-1.246	0.046 to -0.010
02	1	1	0	11	11	0.000	0.023	0.045	-0.511	0.112 to -0.066
	1	2	2	11	11	0.182	0.007	0.026	6.775	0.058 to -0.043
	1	3	0	11	11	0.000	0.007	0.025	-0.274	0.055 to -0.042
	1	4	0	11	11	0.000	0.019	0.041	-0.459	0.099 to -0.061
	1	5	2	11	11	0.182	0.282	0.136	-0.738	0.548 to 0.016
	1	6	1	11	11	0.091	0.011	0.032	2.516	0.073 to -0.051
	1	7	4	11	11	0.364	0.222	0.125	1.134	0.467 to -0.024
	1	8	0	11	11	0.000	0.018	0.040	-0.448	0.096 to -0.060
03	1	1	0	22	17	0.000	0.023	0.032	-0.723	0.086 to -0.040
	1	2	0	22	17	0.0	0.007	0.018	-0.404	0.043 to -0.028
	1	3	8	22	17	0.364	0.007	0.017	20.427	0.041 to -0.027
	1	4	0	22	17	0.000	0.019	0.029	-0.649	0.076 to -0.038
	1	5	9	22	17	0.409	0.282	0.096	1.326	0.470 to 0.094
	1	6	0	22	17	0.000	0.011	0.022	-0.499	0.055 to -0.033
	1	7	5	22	17	0.227	0.222	0.089	0.064	0.395 to 0.048
	1	8	0	22	17	0.000	0.018	0.028	-0.634	0.073 to -0.038
	1	1	1	108	86	0.009	0.023	0.014	-0.963	0.052 to -0.005
	1	2	2	108	86	0.019	0.007	0.008	1.359	0.023 to -0.009

04	1	3	0	108	86	0.000	0.007	0.008	-0.857	0.022 to -0.009
	1	4	64	108	86	0.593	0.019	0.013	43.889	0.044 to -0.007
	1	5	17	108	86	0.157	0.282	0.043	-1.875	0.367 to 0.197
	1	6	0	108	86	0.000	0.011	0.010	-1.105	0.031 to -0.009
	1	7	30	108	86	0.278	0.222	0.040	1.405	0.300 to 0.143
	1	8	0	108	86	0.000	0.018	0.013	-1.404	0.043 to -0.007
05	1	1	1	53	51	0.019	0.023	0.021	-0.210	0.064 to -0.017
	1	2	0	53	51	0.000	0.007	0.012	-0.626	0.030 to -0.016
	1	3	0	53	51	0.000	0.007	0.011	-0.601	0.030 to -0.016
	1	4	0	53	51	0.000	0.019	0.019	-1.008	0.055 to -0.018
	1	5	42	53	51	0.792	0.282	0.062	8.261	0.403 to 0.161
	1	6	0	53	51	0.000	0.011	0.014	-0.774	0.039 to -0.017
	1	7	8	53	51	0.151	0.222	0.057	-1.239	0.333 to 0.110
	1	8	0	53	51	0.000	0.018	0.018	-0.984	0.054 to -0.018
06	1	1	1	379	346	0.003	0.023	0.008	-2.661	0.038 to 0.008
	1	2	0	379	346	0.000	0.007	0.004	-1.675	0.016 to -0.001
	1	3	0	379	346	0.000	0.007	0.004	-1.606	0.015 to -0.001
	1	4	0	379	346	0.000	0.019	0.007	-2.696	0.032 to 0.005
	1	5	32	379	346	0.084	0.282	0.023	-8.544	0.327 to 0.237
	1	6	8	379	346	0.021	0.011	0.005	1.841	0.022 to 0.001
	1	7	313	379	346	0.826	0.022	0.021	28.321	0.263 to 0.180
	1	8	1	379	346	0.003	0.018	0.007	-2.243	0.031 to 0.005
07	1	1	13	544	494	0.024	0.023	0.006	0.105	0.036 to 0.011
	1	2	14	544	494	0.026	0.007	0.004	5.021	0.015 to 0.000
	1	3	7	544	494	0.013	0.007	0.004	1.738	0.014 to -0.007
	1	4	4	544	494	0.007	0.019	0.006	-1.967	0.030 to 0.007
	1	5	126	544	494	0.232	0.282	0.019	-2.606	0.320 to 0.244
	1	6	19	544	494	0.035	0.011	0.005	5.272	0.020 to 0.002
	1	7	252	544	494	0.463	0.222	0.018	13.567	0.257 to 0.187
	1	8	12	544	494	0.022	0.018	0.006	0.726	0.029 to 0.007
08	1	1	3	94	91	0.032	0.023	0.016	0.560	0.054 to -0.007
	1	2	2	94	91	0.021	0.007	0.009	1.581	0.025 to -0.010
	1	3	0	94	91	0.000	0.007	0.008	-0.800	0.023 to -0.010
	1	4	8	94	91	0.085	0.019	0.014	4.731	0.046 to -0.009
	1	5	25	94	91	0.266	0.282	0.046	-0.343	0.373 to 0.191
	1	6	3	94	91	0.032	0.011	0.011	1.914	0.032 to -0.010
	1	7	33	94	91	0.351	0.222	0.043	3.021	0.306 to 0.138
	1	8	0	94	91	0.000	0.018	0.014	-1.310	0.045 to -0.009
09		NO CRITERION								

TABLE 76

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY SEVEN (D-H) / CHILD

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN-DEV.	Z	95 PCT CONF. INTVL.
	0	1	85	3402	3402	0.025	0.025	0.003	0.000	0.030 to 0.020
	0	2	11	3402	3402	0.003	0.003	0.001	0.000	0.005 to 0.001
	0	3	22	3402	3402	0.006	0.006	0.001	0.000	0.009 to 0.004
	0	4	108	3402	3402	0.032	0.032	0.003	0.000	0.038 to 0.026
	0	5	53	3402	3402	0.016	0.016	0.002	0.000	0.020 to 0.011
	0	6	379	3402	3402	0.111	0.111	0.005	0.000	0.122 to 0.101
	0	7	545	3402	3402	0.160	0.160	0.006	0.000	0.173 to 0.148
	0	8	94	3402	3402	0.028	0.028	0.003	0.000	0.033 to 0.022
	0	9	0	3402	3402	0.000	0.000	0.000	0.000	0.000 to -0.000
01	1	1	30	79	77	0.380	0.025	0.018	20.202	0.059 to -0.009
	1	2	0	79	77	0.000	0.003	0.006	-0.506	0.016 to -0.009
	1	3	0	79	77	0.000	0.006	0.009	-0.717	0.024 to -0.011
	1	4	3	79	77	0.038	0.032	0.020	0.316	0.070 to -0.007
	1	5	1	79	77	0.013	0.016	0.014	-0.210	0.043 to -0.012
	1	6	4	79	77	0.051	0.111	0.035	-1.717	0.181 to 0.042
	1	7	9	79	77	0.114	0.160	0.041	-1.121	0.241 to 0.079
	1	8	2	79	77	0.025	0.028	0.018	-0.125	0.064 to -0.009
	1	9	0	79	77	0.000	0.000	0.000	0.000	0.000 to -0.000
02	1	1	1	25	19	0.040	0.025	0.031	0.481	0.086 to -0.036
	1	2	2	25	19	0.080	0.003	0.011	6.761	0.025 to -0.019
	1	3	1	25	19	0.040	0.006	0.016	2.092	0.038 to -0.025
	1	4	2	25	19	0.080	0.032	0.035	1.376	0.100 to -0.037
	1	5	1	25	19	0.040	0.016	0.025	0.986	0.064 to -0.033
	1	6	4	25	19	0.160	0.111	0.063	0.772	0.235 to -0.012
	1	7	11	25	19	0.440	0.160	0.073	3.814	0.304 to 0.016
	1	8	2	25	19	0.080	0.028	0.033	1.597	0.092 to -0.037
	1	9	0	25	19	0.000	0.000	0.000	0.000	0.000 to -0.000
03	1	1	1	23	23	0.043	0.025	0.033	0.568	0.089 to -0.039
	1	2	0	23	23	0.000	0.003	0.012	-0.273	0.026 to -0.020
	1	3	0	23	23	0.000	0.006	0.017	-0.387	0.039 to -0.026
	1	4	0	23	23	0.000	0.032	0.037	-0.868	0.103 to -0.040
	1	5	1	23	23	0.043	0.016	0.026	1.080	0.066 to -0.035
	1	6	1	23	23	0.043	0.111	0.066	-1.035	0.240 to -0.017
	1	7	2	23	23	0.087	0.160	0.076	-0.958	0.310 to 0.010
	1	8	0	23	23	0.000	0.028	0.034	-0.808	0.095 to -0.039

	1	9	0	23	23	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	3	64	62	0.047	0.025	0.020	1.122	0.063 to -0.013
	1	2	0	64	62	0.000	0.003	0.007	-0.456	0.017 to -0.011
	1	3	0	64	62	0.000	0.006	0.010	-0.645	0.026 to -0.013
04	1	4	1	64	62	0.016	0.032	0.022	-0.736	0.075 to -0.011
	1	5	4	64	62	0.063	0.016	0.015	3.031	0.046 to -0.015
	1	6	12	64	62	0.188	0.111	0.039	1.935	0.188 to 0.034
	1	7	20	64	62	0.313	0.160	0.046	3.322	0.250 to 0.070
	1	8	2	64	62	0.031	0.028	0.020	0.177	0.068 to -0.013
	1	9	0	64	62	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	17	959	75	0.018	0.025	0.005	-1.440	0.035 to 0.015
	1	2	3	959	75	0.003	0.003	0.002	-0.057	0.007 to -0.000
	1	3	9	959	75	0.009	0.006	0.003	1.127	0.012 to 0.001
05	1	4	29	959	75	0.030	0.032	0.066	-0.266	0.043 to 0.021
	1	5	14	959	75	0.015	0.016	0.004	-0.245	0.023 to 0.008
	1	6	64	959	75	0.067	0.111	0.010	-4.397	0.131 to 0.091
	1	7	109	959	75	0.114	0.160	0.012	-3.929	0.183 to 0.137
	1	8	39	959	75	0.041	0.028	0.005	2.463	0.038 to 0.017
	1	9	0	959	75	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	0	38	34	0.000	0.025	0.025	-0.987	0.075 to -0.025
	1	2	0	38	34	0.000	0.003	0.009	-0.351	0.021 to -0.015
	1	3	0	38	34	0.000	0.006	0.013	-0.497	0.032 to -0.019
06	1	4	1	38	34	0.026	0.032	0.028	-0.191	0.087 to -0.024
	1	5	0	38	34	0.000	0.016	0.020	-0.775	0.055 to -0.024
	1	6	5	38	34	0.132	0.111	0.051	0.395	0.211 to 0.011
	1	7	29	38	34	0.763	0.160	0.060	10.134	0.277 to 0.044
	1	8	1	38	34	0.026	0.028	0.027	-0.049	0.080 to -0.024
	1	9	0	38	34	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	21	754	690	0.028	0.025	0.006	0.504	0.036 to 0.014
	1	2	3	754	690	0.004	0.003	0.002	0.361	0.007 to -0.001
	1	3	11	754	690	0.015	0.006	0.003	2.782	0.012 to 0.001
07	1	4	40	754	690	0.053	0.032	0.006	3.337	0.044 to 0.019
	1	5	10	754	690	0.013	0.016	0.005	-0.514	0.024 to 0.007
	1	6	214	754	690	0.284	0.111	0.011	15.047	0.134 to 0.089
	1	7	287	754	690	0.381	0.160	0.013	16.503	0.186 to 0.134
	1	8	18	754	690	0.024	0.028	0.006	-0.630	0.039 to 0.016
	1	9	0	754	690	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	3	61	60	0.049	0.025	0.020	1.211	0.064 to -0.014
	1	2	0	61	60	0.000	0.003	0.007	-0.445	0.017 to -0.011
	1	3	1	61	60	0.016	0.006	0.010	0.967	0.027 to -0.014
08	1	4	2	61	60	0.033	0.032	0.022	0.046	0.076 to -0.012
	1	5	0	61	60	0.000	0.016	0.016	-0.093	0.047 to -0.015
	1	6	19	61	60	0.311	0.111	0.040	4.966	0.190 to 0.032
	1	7	28	61	60	0.459	0.160	0.047	6.363	0.252 to 0.068
	1	8	0	61	60	0.000	0.028	0.021	-1.317	0.069 to -0.014
	1	9	0	61	60	0.000	0.000	0.000	0.000	0.000 to -0.000

TABLE 77

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY EIGHT (H-H) / MOTHER

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN-DEV.	Z	95 PCT CONF. INTVL.
	0	1	4	2451	2451	0.002	0.002	0.001	0.000	0.003 to 0.000
	0	2	13	2451	2451	0.005	0.005	0.001	0.000	0.008 to 0.002
	0	3	3	2451	2451	0.001	0.001	0.001	0.000	0.003 to -0.000
	0	4	101	2451	2451	0.041	0.041	0.004	0.000	0.049 to 0.033
	0	5	1224	2451	2451	0.499	0.499	0.010	0.000	0.519 to 0.480
	0	6	13	2451	2451	0.005	0.005	0.001	0.000	0.008 to 0.002
	0	7	252	2451	2451	0.103	0.103	0.006	0.000	0.115 to 0.091
	0	8	37	2451	2451	0.015	0.015	0.002	0.000	0.020 to 0.010
01	1	1	1	29	29	0.034	0.002	0.007	4.383	0.016 to -0.013
	1	2	0	29	29	0.000	0.005	0.013	-0.393	0.032 to -0.021
	1	3	0	29	29	0.000	0.001	0.006	-0.189	0.014 to -0.012
	1	4	0	29	29	0.000	0.041	0.037	-01.116	0.114 to -0.031
	1	5	14	29	29	0.483	0.499	0.093	-0.179	0.681 to 0.317
	1	6	1	29	29	0.034	0.005	0.013	2.163	0.032 to -0.021
	1	7	1	29	29	0.034	0.103	0.056	-1.212	0.213 to -0.008
	1	8	1	29	29	0.034	0.015	0.023	0.856	0.059 to -0.029
02	1	1	0	4	4	0.000	0.002	0.020	-0.081	0.041 to -0.038
	1	2	0	4	4	0.000	0.005	0.036	-0.146	0.076 to -0.066
	1	3	0	4	4	0.000	0.001	0.017	-0.070	0.035 to -0.033
	1	4	0	4	4	0.000	0.041	0.099	-0.415	0.236 to -0.154
	1	5	1	4	4	0.250	0.499	0.250	-0.998	0.080 to 0.009
	1	6	0	4	4	0.000	0.005	0.036	-0.146	0.076 to -0.066
	1	7	0	4	4	0.000	0.103	0.152	-0.677	0.400 to -0.195
	1	8	0	4	4	0.000	0.015	0.061	-0.248	0.135 to -0.104
03	1	1	0	4	4	0.000	0.002	0.020	-0.081	0.041 to -0.038
	1	2	0	4	4	0.000	0.005	0.036	-0.146	0.076 to -0.066
	1	3	3	4	4	0.750	0.001	0.017	41.831	0.035 to -0.033
	1	4	0	4	4	0.000	0.041	0.099	-0.415	0.236 to -0.154
	1	5	2	4	4	0.500	0.499	0.250	0.002	0.989 to 0.009
	1	6	0	4	4	0.000	0.005	0.036	-0.146	0.076 to -0.066
	1	7	0	4	4	0.000	0.103	0.152	-0.677	0.400 to -0.195
	1	8	0	4	4	0.000	0.015	0.061	-1.248	0.135 to -0.104
	1	1	0	101	101	0.000	0.002	0.004	-0.406	0.010 to -0.006
	1	2	5	101	101	0.050	0.005	0.007	6.116	0.019 to -0.009

	1	3	0	101	101	0.000	0.001	0.003	-0.352	0.008 to -0.006
04	1	4	100	101	101	0.990	0.041	0.020	47.976	0.080 to 0.002
	1	5	48	101	101	0.475	0.499	0.050	-0.485	0.597 to 0.402
	1	6	0	101	101	0.000	0.005	0.007	-0.734	0.019 to -0.009
	1	7	0	101	101	0.000	0.103	0.030	-3.402	0.162 to 0.044
	1	8	0	101	101	0.000	0.015	0.012	-1.244	0.039 to -0.009
	1	1	0	15	13	0.000	0.002	0.010	-0.157	0.022 to -0.019
	1	2	0	15	13	0.000	0.005	0.019	-0.283	0.042 to -0.031
	1	3	0	15	13	0.000	0.001	0.009	-0.136	0.019 to -0.016
05	1	4	0	15	13	0.000	0.041	0.051	-0.803	0.142 to -0.059
	1	5	13	15	13	0.867	0.499	0.129	2.845	0.752 to 0.246
	1	6	0	15	13	0.000	0.005	0.019	-0.283	0.042 to -0.031
	1	7	1	15	13	0.067	0.103	0.078	-0.461	0.257 to -0.051
	1	8	0	15	13	0.000	0.015	0.031	-0.479	0.077 to -0.047
	1	1	0	235	235	0.000	0.002	0.003	-0.620	0.007 to -0.004
	1	2	1	235	235	0.004	0.005	0.005	-0.221	0.015 to -0.004
	1	3	0	235	235	0.000	0.001	0.002	-0.537	0.00[illegible] to -0.003
06	1	4	0	235	235	0.000	0.041	0.013	-3.178	0.067 to 0.016
	1	5	110	235	235	0.468	0.499	0.033	-0.960	0.563 to 0.435
	1	6	0	235	235	0.000	0.005	0.005	-1.119	0.015 to -0.004
	1	7	106	235	235	0.451	0.103	0.020	17.577	0.142 to 0.064
	1	8	4	235	235	0.017	0.015	0.008	0.242	0.031 to -0.000
	1	1	1	305	305	0.003	0.002	0.002	0.712	0.006 to -0.003
	1	2	2	305	305	0.007	0.005	0.004	0.301	0.013 to -0.003
	1	3	0	305	305	0.000	0.001	0.002	-0.611	0.005 go -0.003
07	1	4	0	305	305	0.000	0.041	0.011	-3.621	0.064 to 0.019
	1	5	151	305	305	0.495	0.499	0.029	-0.150	0.556 to 0.443
	1	6	1	305	305	0.003	0.005	0.004	-0.487	0.013 to -0.003
	1	7	30	305	305	0.098	0.103	0.017	-0.256	0.137 to 0.069
	1	8	5	305	305	0.016	0.015	0.007	0.186	0.029 to 0.001
	1	1	0	2	2	0.000	0.002	0.029	-0.057	0.058 to -0.054
	1	2	0	2	2	0.000	0.005	0.051	-0.103	0.106 to -0.095
	1	3	0	2	2	0.000	0.001	0.025	-0.050	0.050 to -0.047
08	1	4	0	2	2	0.000	0.041	0.141	-0.293	0.317 to -0.234
	1	5	1	2	2	0.500	0.499	0.354	0.002	1.192 to -0.194
	1	6	0	2	2	0.000	0.005	0.051	-0.103	0.106 to -0.095
	1	7	0	2	2	0.000	0.103	0.215	-0.479	0.524 to -0.318
	1	8	0	2	2	0.000	0.015	0.086	-0.175	0.184 to -0.154
	1	1	0	1	1	0.000	0.002	0.040	-0.040	0.081 to -0.077
	1	2	0	1	1	0.000	0.005	0.073	-0.073	0.148 to -0.137
	1	3	0	1	1	0.000	0.001	0.035	-0.035	0.070 to -0.067
09	1	4	0	1	1	0.000	0.041	0.199	-0.207	0.431 to -0.348
	1	5	0	1	1	0.000	0.499	0.500	-0.999	1.479 to -0.481
	1	6	0	1	1	0.000	0.005	0.073	-0.073	0.148 to -0.137
	1	7	0	1	1	0.000	0.103	0.304	-0.339	0.698 to -0.492
	1	8	0	1	1	0.000	0.015	0.122	-0.124	0.254 to -0.224

TABLE 78

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY EIGHT (H-H) / CHILD

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN-DEV.	Z	95 PCT CONF. INTVL.
	0	1	29	2451	2451	0.012	0.012	0.002	0.000	0.016 to 0.008
	0	2	4	2451	2451	0.002	0.002	0.001	0.000	0.003 to 0.000
	0	3	4	2451	2451	0.002	0.002	0.001	0.000	0.003 to 0.000
	0	4	101	2451	2451	0.041	0.041	0.004	0.000	0.049 to 0.033
	0	5	15	2451	2451	0.006	0.006	0.002	0.000	0.009 to 0.003
	0	6	235	2451	2451	0.096	0.096	0.006	0.000	0.108 to 0.084
	0	7	305	2451	2451	0.124	0.124	0.007	0.000	0.138 to 0.111
	0	8	2	2451	2451	0.001	0.001	0.001	0.000	0.002 to -0.000
	0	9	1	2451	2451	0.000	0.000	0.000	0.000	0.001 to -0.000
01	1	1	0	4	3	0.000	0.012	0.054	-0.219	0.118 to -0.094
	1	2	0	4	3	0.000	0.002	0.020	-0.081	0.041 to -0.038
	1	3	0	4	3	0.000	0.002	0.020	-0.081	0.041 to -0.038
	1	4	0	4	3	0.000	0.041	0.099	-0.415	0.236 to -0.154
	1	5	0	4	3	0.000	0.006	0.039	-0.157	0.083 to -0.070
	1	6	1	4	3	0.250	0.096	0.147	1.047	0.384 to -0.193
	1	7	2	4	3	0.500	0.124	0.165	2.276	0.448 to -0.199
	1	8	0	4	3	0.000	0.001	0.014	-0.057	0.029 to -0.027
	1	9	0	4	3	0.000	0.000	0.010	-0.040	0.020 to -0.019
02	1	1	0	13	5	0.000	0.012	0.030	-0.395	0.071 to -0.047
	1	2	0	13	5	0.000	0.002	0.011	-0.395	0.024 to -0.020
	1	3	0	13	5	0.000	0.002	0.011	-0.146	0.024 to -0.020
	1	4	2	13	5	0.154	0.041	0.055	2.043	0.149 to -0.067
	1	5	0	13	5	0.000	0.006	0.022	-0.283	0.149 to -0.067
	1	6	0	13	5	0.000	0.096	0.082	-1.174	0.256 to -0.064
	1	7	4	13	5	0.308	0.124	0.092	2.002	0.304 to -0.055
	1	8	0	13	5	0.000	0.001	0.008	-0.103	0.016 to -0.015
	1	9	0	13	5	0.000	0.000	0.006	-0.073	0.011 to -0.011
03	1	1	0	3	3	0.000	0.012	0.062	-0.190	0.134 to -0.111
	1	2	0	3	3	0.000	0.002	0.023	-0.070	0.047 to -0.044
	1	3	0	3	3	0.000	0.002	0.023	-0.070	0.047 to -0.044
	1	4	1	3	3	0.333	0.041	0.115	2.546	0.266 to -0.184
	1	5	0	3	3	0.000	0.006	0.045	-0.136	0.094 to -0.082
	1	6	1	3	3	0.333	0.096	0.170	1.397	0.429 to -0.237
	1	7	0	3	3	0.000	0.124	0.191	-0.653	0.498 to -0.249
	1	8	0	3	3	0.000	0.001	0.016	-0.049	0.033 to -0.031

	1	9	0	3	3	0.000	0.000	0.012	-0.035	0.023 to -0.022
04	1	1	3	101	83	0.030	0.012	0.011	1.661	0.033 to -0.009
	1	2	2	101	83	0.020	0.002	0.004	4.524	0.010 to -0.006
	1	3	0	101	83	0.000	0.002	0.004	-0.406	0.010 to -0.006
	1	4	4	101	83	0.040	0.041	0.020	-0.081	0.080 to 0.002
	1	5	0	101	83	0.000	0.006	0.008	-0.789	0.021 to -0.009
	1	6	12	101	83	0.119	0.096	0.029	0.783	0.153 to 0.038
	1	7	30	101	83	0.297	0.124	0.033	5.255	0.189 to 0.060
	1	8	0	101	83	0.000	0.001	0.003	-0.287	0.006 to -0.005
	1	9	0	101	83	0.000	0.000	0.002	-0.203	0.004 to -0.004
05	1	1	13	1223	382	0.011	0.012	0.003	-0.389	0.018 to 0.006
	1	2	1	1223	382	0.001	0.002	0.001	-0.706	0.004 to -0.001
	1	3	2	1223	382	0.002	0.002	0.001	0.003	0.004 to -0.001
	1	4	46	1223	382	0.038	0.041	0.006	-0.633	0.052 to 0.030
	1	5	5	1223	382	0.004	0.006	0.002	-0.911	0.010 to 0.002
	1	6	121	1223	382	0.099	0.096	0.008	0.363	0.112 to 0.079
	1	7	155	1223	382	0.127	0.124	0.009	0.244	0.143 to 0.106
	1	8	1	1223	382	0.001	0.001	0.001	0.002	0.002 to -0.001
	1	9	1	1223	382	0.001	0.000	0.001	0.709	0.002 to -0.001
06	1	1	0	13	13	0.000	0.012	0.030	-0.395	0.071 to -0.047
	1	2	0	13	13	0.000	0.002	0.011	-0.146	0.024 to -0.020
	1	3	0	13	13	0.000	0.002	0.011	-0.146	0.024 to -0.020
	1	4	0	13	13	0.000	0.041	0.055	-0.747	0.149 to -0.067
	1	5	0	13	13	0.000	0.006	0.022	-0.283	0.049 to -0.036
	1	6	0	13	13	0.154	0.096	0.082	0.710	0.256 to -0.064
	1	7	6	13	13	0.462	0.124	0.092	3.682	0.304 to -0.055
	1	8	0	13	13	0.000	0.001	0.008	-0.103	0.016 to -0.015
	1	9	0	13	13	0.000	0.000	0.006	-0.073	0.011 to -0.011
07	1	1	5	252	222	0.029	0.012	0.007	1.176	0.025 to -0.002
	1	2	0	252	222	0.000	0.002	0.003	-0.642	0.007 to -0.003
	1	3	2	252	222	0.008	0.002	0.003	2.479	0.007 to -0.003
	1	4	23	252	222	0.091	0.041	0.013	3.998	0.066 to 0.017
	1	5	3	252	222	0.012	0.006	0.005	1.177	0.016 to -0.004
	1	6	53	252	222	0.210	0.096	0.019	6.170	0.132 to 0.060
	1	7	52	252	222	0.206	0.124	0.021	3.939	0.165 to 0.084
	1	8	0	252	222	0.000	0.001	0.002	-0.454	0.004 to -0.003
	1	9	0	252	222	0.000	0.000	0.001	-0.321	0.003 to -0.002
08	1	1	1	37	31	0.027	0.012	0.018	0.855	0.047 to -0.023
	1	2	0	37	31	0.000	0.002	0.007	-0.246	0.015 to -0.011
	1	3	0	37	31	0.000	0.002	0.007	-0.246	0.015 to -0.011
	1	4	2	37	31	0.054	0.041	0.033	0.393	0.105 to -0.023
	1	5	0	37	31	0.000	0.006	0.013	-0.477	0.031 to -0.019
	1	6	9	37	31	0.243	0.096	0.048	3.045	0.191 to 0.001
	1	7	5	37	31	0.135	0.124	0.054	0.197	0.231 to 0.018
	1	8	0	37	31	0.000	0.001	0.005	-0.174	0.010 to -0.008
	1	9	0	37	31	0.000	0.000	0.003	-0.123	0.007 to -0.006

TABLE 79

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY NINE (H-H) / MOTHER

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN-DEV.	Z	95 PCT CONF. INTVL.
	0	1	14	3168	3168	0.004	0.004	0.001	0.000	0.007 to 0.002
	0	2	30	3168	3168	0.009	0.009	0.002	0.000	0.013 to 0.006
	0	3	5	3168	3168	0.002	0.002	0.001	0.000	0.003 to 0.000
	0	4	136	3168	3168	0.043	0.043	0.004	0.000	0.050 to 0.036
	0	5	1236	3168	3168	0.390	0.390	0.009	0.000	0.407 to 0.373
	0	6	337	3168	3168	0.106	0.106	0.005	0.000	0.117 to 0.096
	0	7	655	3168	3168	0.207	0.207	0.007	0.000	0.221 to 0.193
	0	8	57	3168	3168	0.018	0.018	0.002	0.000	0.023 5o 0.013
01	1	1	2	37	36	0.054	0.004	0.011	4.552	0.026 to -0.017
	1	2	0	37	36	0.000	0.009	0.016	-0.595	0.041 to -0.022
	1	3	0	37	36	0.000	0.002	0.007	-0.242	0.014 to -0.011
	1	4	0	37	36	0.000	0.043	0.033	-1.288	0.108 to -0.022
	1	5	12	37	36	0.342	0.390	0.080	-0.821	0.547 to 0.233
	1	6	5	37	36	0.135	0.106	0.051	0.567	0.206 to 0.007
	1	7	4	37	36	0.108	0.207	0.067	-1.482	0.337 to 0.076
	1	8	1	37	36	0.027	0.018	0.022	0.413	0.061 to -0.025
02	1	1	0	5	5	0.000	0.004	0.030	-0.149	0.063 to -0.054
	1	2	0	5	5	0.000	0.009	0.043	-0.219	0.094 to -0.075
	1	3	0	5	5	0.000	0.002	0.018	-0.089	0.036 to -0.033
	1	4	0	5	5	0.000	0.043	0.091	-0.474	0.221 to -0.135
	1	5	1	5	5	0.200	0.390	0.218	-0.872	0.818 to -0.037
	1	6	0	5	5	0.000	0.106	0.138	-0.771	0.377 to -0.164
	1	7	1	5	5	0.200	0.207	0.181	-0.037	0.562 to -0.148
	1	8	1	5	5	0.200	0.018	0.059	3.062	0.135 to -0.099
03	1	1	0	6	6	0.000	0.004	0.027	-0.163	0.057 to -0.049
	1	2	0	6	6	0.000	0.009	0.040	-0.240	0.087 to -0.068
	1	3	5	6	6	0.833	0.002	0.016	51.324	0.033 to -0.030
	1	4	0	6	6	0.000	0.043	0.083	-0.519	0.205 to -0.119
	1	5	6	6	6	1.000	0.390	0.199	3.062	0.780 to -0.000
	1	6	0	6	6	0.000	0.106	0.126	-0.845	0.353 to -0.140
	1	7	1	6	6	0.167	0.207	0.165	-0.242	0.531 to -0.117
	1	8	0	6	6	0.000	0.018	0.054	-0.332	0.124 to -0.088
	1	1	1	138	138	0.007	0.004	0.006	0.501	0.015 to -0.007
	1	2	5	138	138	0.036	0.009	0.008	3.246	0.026 to -0.007

04	1	3	0	138	138	0.000	0.002	0.003	-0.467	0.008 to -0.005
	1	4	135	138	138	0.978	0.043	0.017	54.207	0.077 to 0.009
	1	5	80	138	138	0.580	0.390	0.042	4.565	0.472 to 0.309
	1	6	0	138	138	0.000	0.106	0.026	-4.053	0.158 to 0.055
	1	7	1	138	138	0.007	0.207	0.034	-5.787	0.274 to 0.139
	1	8	0	138	138	0.000	0.018	0.011	-1.590	0.040 to -0.004
05	1	1	0	9	9	0.000	0.004	0.022	-0.200	0.048 to -0.039
	1	2	0	9	9	0.000	0.009	0.032	-0.293	0.073 to -0.054
	1	3	0	9	9	0.000	0.002	0.013	-0.119	0.028 to -0.024
	1	4	0	9	9	0.000	0.043	0.068	-0.635	0.175 to -0.089
	1	5	8	9	9	0.889	0.390	0.163	3.067	0.709 to 0.071
	1	6	0	9	9	0.000	0.106	0.103	-1.035	0.308 to -0.095
	1	7	1	9	9	0.111	0.207	0.135	-0.709	0.471 to -0.058
	1	8	0	9	9	0.000	0.018	0.044	-0.406	0.105 to -0.069
06	1	1	1	376	376	0.003	0.004	0.003	-0.514	0.011 to -0.002
	1	2	1	376	376	0.003	0.009	0.005	-1.363	0.019 to -0.000
	1	3	0	376	376	0.000	0.002	0.002	-0.771	0.006 to -0.002
	1	4	0	376	376	0.000	0.043	0.010	-4.107	0.063 to 0.022
	1	5	169	376	376	0.449	0.390	0.025	2.358	0.439 to 0.341
	1	6	44	376	376	0.117	0.106	0.016	0.669	0.138 to 0.075
	1	7	207	376	376	0.551	0.207	0.021	16.460	0.248 to 0.166
	1	8	2	376	376	0.005	0.018	0.007	-1.849	0.031 to 0.005
07	1	1	2	546	546	0.004	0.004	0.003	-0.266	0.010 to -0.001
	1	2	8	546	546	0.015	0.009	0.004	1.250	0.018 to 0.001
	1	3	0	546	546	0.000	0.002	0.002	-0.929	0.005 to -0.002
	1	4	0	546	546	0.000	0.043	0.009	-4.949	0.060 to 0.026
	1	5	211	546	546	0.386	0.390	0.021	-0.177	0.431 to 0.349
	1	6	102	546	546	0.187	0.106	0.013	6.096	0.132 to 0.081
	1	7	128	546	546	0.234	0.207	0.017	1.597	0.241 to 0.173
	1	8	9	546	546	0.016	0.018	0.006	-0.265	0.029 to 0.007
08	1	1	0	8	8	0.000	0.004	0.023	-0.188	0.050 to -0.042
	1	2	0	8	8	0.000	0.009	0.034	-0.277	0.077 to -0.058
	1	3	0	8	8	0.000	0.002	0.014	-0.112	0.029 to -0.026
	1	4	0	8	8	0.000	0.043	0.072	-0.599	0.183 to -0.098
	1	5	0	8	8	0.000	0.390	0.172	-2.262	0.728 to 0.052
	1	6	0	8	8	0.000	0.106	0.109	-0.976	0.320 to -0.107
	1	7	2	8	8	0.250	0.207	0.143	0.302	0.487 to -0.074
	1	8	0	8	8	0.000	0.018	0.047	-0.383	0.110 to -0.074
09		NO CRITERION								

TABLE 80

EVENT SEQUENTIAL ANALYSIS

LAG ONE FROM ALL OCCURRENCES OF THE CRITERION
FAMILY NINE (H-H) / CHILD

CRIT. SEL.	LAG	CODE	FREQ	NCRIT	TOT.	OBS'D	EXP'D	STAN-DEV.	Z	95 PCT CONF. INTVL.
	0	1	37	3168	3168	0.012	0.012	0.002	0.000	0.015 to 0.008
	0	2	5	3168	3168	0.002	0.002	0.001	0.000	0.003 to 0.000
	0	3	6	3168	3168	0.002	0.002	0.001	0.000	0.003 to 0.000
	0	4	138	3168	3168	0.002	0.002	0.001	0.000	0.051 to 0.036
	0	5	9	3168	3168	0.003	0.003	0.001	0.000	0.130 to 0.001
	0	6	376	3168	3168	0.119	0.119	0.006	0.000	0.130 to 0.107
	0	7	546	3168	3168	0.172	0.172	0.007	0.000	0.186 to 0.159
	0	8	8	3168	3168	0.003	0.003	0.001	0.000	0.004 to 0.001
	0	9	0	3168	3168	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	3	14	8	0.214	0.012	0.029	7.056	0.068 to -0.045
	1	2	0	14	8	0.000	0.002	0.011	-0.149	0.022 to -0.019
	1	3	0	14	8	0.000	0.002	0.012	-0.163	0.025 to -0.021
01	1	4	2	14	8	0.143	0.044	0.055	1.820	0.150 to -0.063
	1	5	0	14	8	0.000	0.003	0.014	-0.200	0.031 to -0.025
	1	6	0	14	8	0.000	0.119	0.086	-1.373	0.288 to -0.051
	1	7	4	14	8	0.286	0.172	0.101	1.123	0.370 to -0.025
	1	8	0	14	8	0.000	0.003	0.013	-0.188	0.029 to -0.024
	1	9	0	14	8	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	0	30	17	0.000	0.012	0.020	-0.595	0.050 to -0.027
	1	2	0	30	17	0.000	0.002	0.007	-0.218	0.016 to -0.013
	1	3	0	30	17	0.000	0.002	0.008	-0.239	0.017 to -0.014
02	1	4	3	30	17	0.100	0.044	0.037	1.514	0.117 to -0.029
	1	5	1	30	17	0.033	0.003	0.010	3.138	0.022 to -0.016
	1	6	5	30	17	0.167	0.119	0.059	0.813	0.234 to 0.003
	1	7	8	30	17	0.267	0.172	0.069	1.368	0.308 to 0.037
	1	8	0	30	17	0.000	0.003	0.009	-0.276	0.020 to -0.015
	1	9	0	30	17	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	0	5	5	0.000	0.012	0.048	-0.243	0.106 to -0.082
	1	2	0	5	5	0.000	0.002	0.018	-0.089	0.026 to -0.033
	1	3	0	5	5	0.000	0.002	0.019	-0.097	0.040 to -0.036
03	1	4	1	5	5	0.200	0.044	0.091	1.714	0.222 to -0.135
	1	5	0	5	5	0.000	0.003	0.024	-0.119	0.049 to -0.044
	1	6	0	5	5	0.000	0.119	0.145	-0.821	0.402 to -0.165
	1	7	3	5	5	0.600	0.172	0.169	2.532	0.503 to -0.159
	1	8	0	5	5	0.000	0.003	0.022	-0.113	0.047 to -0.041

	1	9	0	5	5	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	3	136	114	0.022	0.012	0.009	1.127	0.030 to -0.006
	1	2	0	136	114	0.000	0.002	0.003	-0.464	0.008 to -0.005
	1	3	1	136	114	0.007	0.002	0.004	1.464	0.009 to -0.005
04	1	4	9	136	114	0.066	0.044	0.018	1.292	0.078 to 0.009
	1	5	0	136	114	0.000	0.003	0.005	-0.622	0.012 to -0.006
	1	6	16	136	114	0.118	0.119	0.028	-0.037	0.173 to 0.064
	1	7	30	136	114	0.221	0.172	0.032	1.490	0.236 to 0.109
	1	8	0	136	114	0.000	0.003	0.004	-0.587	0.011 to -0.006
	1	9	0	136	114	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	12	1236	599	0.010	0.012	0.003	-0.645	0.018 to 0.006
	1	2	1	1236	599	0.001	0.002	0.001	-0.681	0.004 to -0.001
	1	3	6	1236	599	0.005	0.002	0.001	2.394	0.004 to -0.001
05	1	4	80	1236	599	0.065	0.044	0.006	3.645	0.055 to 0.032
	1	5	1	1236	599	0.001	0.003	0.002	-1.342	0.006 to -0.000
	1	6	170	1236	599	0.138	0.119	0.009	2.049	0.137 to 0.101
	1	7	214	1236	599	0.173	0.172	0.011	0.074	0.193 to 0.151
	1	8	0	1236	599	0.000	0.003	0.001	-1.769	0.005 to -0.000
	1	9	0	1236	599	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	1	337	310	0.003	0.012	0.006	-1.489	0.023 to 0.000
	1	2	0	337	310	0.000	0.002	0.002	-0.730	0.006 to -0.003
	1	3	0	337	310	0.000	0.002	0.002	-0.800	0.007 to -0.003
06	1	4	11	337	310	0.033	0.044	0.011	-0.982	0.065 to 0.022
	1	5	0	337	310	0.000	0.003	0.003	-0.980	0.009 to -0.003
	1	6	40	337	310	0.119	0.119	0.018	0.000	0.153 to 0.084
	1	7	184	337	310	0.546	0.172	0.021	18.161	0.213 to -0.003
	1	8	0	337	310	0.000	0.003	0.003	-0.924	0.008 to -0.003
	1	9	0	337	310	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	15	655	591	0.023	0.012	0.004	2.673	0.020 to 0.003
	1	2	3	655	591	0.005	0.002	0.002	1.935	0.005 to -0.001
	1	3	3	655	591	0.005	0.002	0.002	1.581	0.005 to -0.001
07	1	4	37	655	591	0.056	0.044	0.008	1.621	0.059 to 0.028
	1	5	4	655	591	0.006	0.003	0.002	1.570	0.007 to -0.001
	1	6	137	655	591	0.209	0.119	0.013	7.159	0.143 to 0.094
	1	7	125	655	591	0.191	0.172	0.015	1.253	0.201 to 0.143
	1	8	0	655	591	0.000	0.003	0.002	-1.288	0.006 to -0.001
	1	9	0	655	591	0.000	0.000	0.000	0.000	0.000 to -0.000
	1	1	0	57	51	0.000	0.012	0.014	-0.821	0.040 to -0.016
	1	2	0	57	51	0.000	0.002	0.005	-0.300	0.012 to -0.009
	1	3	0	57	51	0.000	0.002	0.006	-0.329	0.013 to -0.009
08	1	4	3	57	51	0.053	0.044	0.027	0.336	0.097 to -0.009
	1	5	0	57	51	0.000	0.003	0.007	-0.403	0.017 to -0.011
	1	6	8	57	51	0.140	0.119	0.043	0.506	0.203 to 0.035
	1	7	8	57	51	0.140	0.172	0.050	-0.640	0.270 to 0.074
	1	8	0	57	51	0.000	0.003	0.007	-0.380	0.016 to -0.011
	1	9	0	57	51	0.000	0.000	0.000	0.000	0.000 to -0.000